American Aviation

MANAGEMENT
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MAINTENANCE
EQUIPMENT

SEPT. 15

1952

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35 cents

TECH COPY 3

NEW STABILITY FOR THE FLYING "WORK-HORSE"

Ask any of the pilots who have test-flown a helicopter equipped with the new Honeywell autopilot specially designed for the "Work-horse," and they'll tell you it makes quite a difference.

For this remarkable autopilot permits much more *accurate* hovering control, provides greatly increased *stability*. And it *simplifies* the task of the human pilot – making his job much less tiring.

Prototype models of this special autopilot for the Piasecki H-21 "Work-horse," developed by Honeywell engineers in cooperation with the Air Materiel Command and the Piasecki Helicopter Corporation, are now being test flown and will soon be placed in production. And that means adaptations of them will soon be available for general helicopter use.

Development of a special autopilot to give the helicopter greater stability is just one of the many aircraft control problems now being researched and solved by Honeywell engineers. We expect to solve many other control problems in the years to come – because *automatic control* is such an important part of aviation progress. And *automatic control* is Honeywell's business.

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AIRTRENDS

Release of additional military aircraft production figures is being considered by the Department of Defense as a means of maintaining public support of the air build-up. Air Force Secretary Finletter feels the present method of stating production in multiples of pre-Korea production is inadequate.

•

Decision is expected soon on the possibility of Canadair Ltd. producing one of Britain's latest military aircraft, in addition to projected plans to build the Bristol Britannia if a market develops for that aircraft here.

•

Lowest fatality rate in airline history was achieved during the past 12 months by the domestic scheduled airlines with a rate of 0.39 fatalities per 100 million passenger-miles for the period ending August 31. Same carriers have a rate of 0.63 for the year 1952, to date, while international lines have a fatality rate of 5.4 for this period.

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USAF's present 143-wing goal may be upped. Serious consideration is being given to shortening the times between the Joint Chiefs of Staff reviews of defense needs, and this is expected to emphasize the needs.

•

Acting APB Chairman William L. Campbell, proponent of the "fewer aircraft types" policy which has caused heated industry discussions of late, will remain in his post as long as NPA-DPA chief Fowler wants him, despite earlier announcements of specific dates when he would leave the government.

•

Final outcome of 81 applications for international certificates by non-scheduled airlines, being handled as part of the current Large Irregular Carrier Investigation, will have to be passed on by the White House.

•

'Manufacturer-Baiting' and 'Carrier-Baiting' are two currently fashionable sports designed to give plenty of free publicity to players. Rules of both games call for much "needling" of potential sellers and buyers of jet transports on both sides of the Atlantic. Participation is open to anyone able to utter the words "firm orders" and "quick delivery."

•

North American Aviation, for the first time in its history, is giving prime attention to the transport aircraft market. Reports indicate NAA is surveying both the executive aircraft operators and the local service airlines about their equipment needs.

•

"Big push" in expansion of the domestic scheduled coach services is now getting underway, stimulated by new equipment deliveries which are easing the long-tight equipment picture.

•

The state of world airline health has been sized up by Sir William Hildred in Geneva, and the patient looks good. Hildred's estimate: a gross profit of about $150 million in 1951, from operating revenues of $1.7 billion.

The Washington View

USAF Budget Shrinks

It appears that the $22,318,361,770 appropriated for the Air Force for the current fiscal year will be the largest USAF budget allotment under the 143-wing program. Defense Secretary Lovett has indicated the Air Force's budget estimate for fiscal 1954 is slightly under this year's.

Air Secretary Thomas Finletter believes the 143-wing force can be sustained for fiscal 1955 with a sum below the 1953 appropriations as well. He said there will be a reduction in the need for money for aircraft and related equipment as more and more planes are delivered this year and next. But this drop, he added, will be partially made up by the need for additional funds for personnel pay as the USAF increases its manpower to handle the larger program.

Arbitration at NAA

It's a debatable point whether the CIO-Autoworkers will ever again agree to arbitration of wages in a dispute with an aircraft company, now that the recommendation of the three-man panel in the North American Aviation case is before the Wage Stabilization Board. Both the company and the union agreed that the panel's finding would be binding if it were first approved by the WSB.

The company had offered a blanket hike of five cents an hour, while the UAW had demanded 28¢ and later dropped their request to 17¢. But the panel, headed by David Cole, veteran labor arbitrator, submitted a recommendation of 10 cents an hour, which the wage board is still studying. Among the justifications given for the proposed boost was the fact that it would narrow the gap between the wages paid to UAW members doing similar jobs for automobile and aircraft companies.

Sen. Johnson Takes a Round

The fued between Sen. Lyndon B. Johnson's Military Preparedness Subcommittee and the Defense Department, especially the Air Force, has been renewed with a subcommittee blast that defense planners in the Pentagon and in the civilian Office of Defense Mobilization had "failed miserably" in the plane production program.

In a repetition of what it had stated in earlier interim reports, the Johnson group accused the military of hampering plane production by refusing to freeze aircraft designs "particularly in the face of accelerated production by a prospective enemy," by a tendency to load some warplanes with gadgets to a point where their effectiveness has been decreased, and by continuing to balance slices of the appropriations dollar so that each service gets an equal share regardless of military needs.

The subcommittee's report said that as of last March 31, the U.S. had fewer planes than when the Korean war began, even though the percentage of jet planes had increased. It added that on June 30 the nation had only one half of the combat wings with modern equipment which were deemed necessary.

And what does the Air Force say about these charges? Air Force Secretary Finletter, obviously unhappy about the latest criticism, called a press conference to tell the American people about the plane production program. Among his major points were:

• **While it is true** that this country had fewer planes last March 31 than on June 25, 1950, "planes in units" actually increased by one third. "Other active planes" decreased by 14% and "planes in storage" dropped by 60%.

• **The Air Force is reluctant** to freeze plane designs because it wants the best quality planes. "The number [under the 143 wing program] are limited; the quality must be unlimited," he said.

• **He and the USAF** Chief of Staff have looked over new plane gadgets and "they seem pretty good." The USAF, he said, should not be so unventuresome as not to make an "occasional mistake" in trying for improvement.

To a Johnson subcommittee recommendation that a "czar" be appointed to determine priorities, freeze designs, and order quantity production begun, Finletter would only say that if the services do a good procurement job themselves there would be no need for such an aircraft production boss.

The Rivals

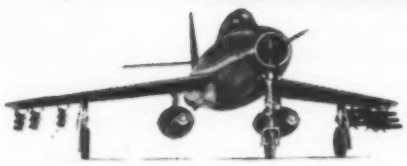
Rivalry between the CIO-Autoworkers and the AFL-Machinists is one of the principal reasons behind the walkout of the IAM at Lockheed's Burbank plant. And it is also the reason the strike may spread to Douglas-Santa Monica and El Segundo.

The IAM feels it cannot accept any proposal based on the recommendation of the North American Aviation panel (see above) because that wage boost will be the result of UAW arguments. Machinists leaders are convinced they must obtain more for IAM workers or else lose face (and possibly members) to the rival aircraft union. That is why they gave the signal for the IAM members at Burbank to quit work and have also notified Douglas that it too will be struck.

Next step in the Douglas walkout will have to come from Washington, where Defense Department officials are studying the effects of the Lockheed walkout. This time they cannot have it certified to the WSB because the Board no longer has any power to settle wage disputes.

. . . Robert M. Loebelson

New "Thunderjet" 100% Equipped with Goodyear Wheels and Brakes



32 rockets of 5" size and two 450 gal. fuel tanks can be carried in addition to fixed armament.

FIRST operational swept-wing fighter-bomber of the Air Force, the new Republic F-84-F "Thunderjet" will start rolling off assembly lines this year — 100% equipped with specially designed wheels and brakes by Goodyear.

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Result: Republic's assembly line production of the F-84-F will be exclusively equipped with Goodyear wheels and brakes. And even more important is the fact that one more key unit in America's climb to aerial supremacy will be ready on schedule.

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American Aviation

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September 15, 1952 Vol. 16, No. 8

ABP

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ADVERTISING OFFICES . . .

New York Office: Terminal Building, LaGuardia Airport, New York, N. Y. Illinois 7-4100. Stephen R. Kent, A. B. Copeland, regional advertising manager.

West Coast Office: Park Central Building, 412 West Sixth St., Los Angeles 14, Calif. Trinity 7997. Fred S. Hunter, manager.

Chicago Office: 139 North Clark St., Chicago 2, Ill. Central 6-5804. Bruce L. McGregor, regional advertising manager.

Foreign Advertising Representative: United Kingdom—Pearl, Cooper Ltd., 2-3 Norfolk St., Strand, London, W. C. 2. Tel. Temple Bar 8111/2.

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Circulation Promotion Mgr.: Larry Brettner

American Aviation is published every other Monday by American Aviation Publications Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Canada, Mexico, Central and South American countries—$5.00 for 1 year; $8.00 for 2 years; $10.00 for 3 years. All other countries—$7.00 for 1 year; $12.00 for 2 years. Entered as Second-Class matter in Washinton, D. C., and Harrisburg, Pa.

Change of Address: Send old address (exactly as it appears on mailing label of your copy of magazine) and new address, including zone number, if any. Allow two weeks for change-over.

Publishing Corporation: American Aviation Publications, Inc., Wayne W. Parrish, presdient; Leonard Eiserer, vice-president and general manager; Albert H. Stackpole, Eric Bramley, vice presidents; E. J. Stackpole, Jr., secretary-treasurer.

American Aviation incorporates Airports and Air Carriers, Airports, Aviation Equipment, The American Pilot, Aviation Sales and Service, U. S. Aviation and American Airports. All rights to these names are reserved.

American Aviation Daily (including International Aviation): Published daily except Saturdays, Sundays and holidays. Subscriptions: $18 one month; $200 one year. Keith Saunders, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy, $7.50. Marion E. Grambow, managing editor.

Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, $11.00 one year, Canada, $11.50. All other countries, $12.50. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. Central 6-5804. C. N. Johnson, managing editor.

American Aviation Traffic News (incorporating Air Tariff Reports): Published daily except Saturdays, Sundays and holidays. Subscriptions: $150 a year. Preble Staver, managing editor.

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Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

LE BIDET

To The Editor:

I would like to take this opportunity to tell you how much I personally enjoyed your article in the August 18 issue of AMERICAN AVIATION concerning some of the advantages(?) the tourists are exposed to when traveling through European countries. Your explanations of the use of the "bidet" were masterful, to say the least.

Not only did I get quite a kick out of it myself, but more important still, my wife, who was recently hospitalized for polio, became quite hysterical on having the article read to her. I took a copy of the magazine to the hospital and I can honestly say that it was responsible for giving many sick people a much needed chuckle.

Should you decide to import this article in wholesale loads, be sure to include me on your list as a potential purchaser!

ROBERT B. MINOGUE
Assistant Director-Military Bureau
Air Traffic Conference of America
Washington, D. C.

(To Reader Minogue (1) cheers for the continued recovery of his wife and (2) the bidet is manufactured in the U. S. as a standard plumbing item by a number of leading firms. Several leading hotels have them in the best suites and they are being installed in many new homes—Ed.)

•

To The Editor:

The article in the recent issue of AMERICAN AVIATION on the Bidet is a masterpiece. You are terrific, give us some more.

ARCHIBALD P. WERNER
San Francisco

•

To The Editor:

Re the photo caption on page 74 of AMERICAN AVIATION for today, *Harrap's Concise English and French Dictionary* insists that the bidet is masculine, rather than feminine, and that the article should be "le" rather than "la."

S. RALPH COHEN
International Air Transport Association
Montreal, Canada

•

To The Editor:

I always enjoy your trips, through the En Route page. As a long-time resident of France I enjoyed the one of August 18 particularly.

Your work is always so meticulous that I was surprised to see you use what I believe to be the wrong gender in discussing that famous instrument, the bidet.

I don't have a French dictionary in the office so suggest you look it up yourself. I think it should be treated as a masculine object, with the usual lack of logic in such things, rather than as a feminine one. In other words shouldn't it be "Le Bidet"?

MAXWELL W. BALFOUR
Spartan Aero Repair
Tulsa, Okla.

(Thanks to sharp-eyed Messrs. Cohen and Balfour, and others, for catching the error in tagging the French bidet with the wrong gender. It's definitely Le Bidet, *not* La Bidet.—Ed.)

•

FULL UNION SHOP

To the Editor:

Our organization, the BROTHERHOOD OF RAILWAY AND STEAMSHIP CLERKS, FREIGHT HANDLERS, EXPRESS AND STATION EMPLOYES, negotiated a Full Union Shop agreement with Pan American World Airways, Inc., which was signed in New York on May 2, 1952, and which became effective as of May 10, 1952.

In the story "Union Security—Four Approaches for Labor" (AMERICAN AVIATION August 18), the tabulation under the heading "Airlines," you show our agreement as being an Agency Agreement, instead of showing it as being a Full Union Shop Agreement, and this has caused some confusion among some of the employes, in that they are up in the "air" as to whether they must join our organization, or only tender dues and fees.

For your ready information, I am attaching hereto an excerpt of this agreement, quoting Sections 1 and 3 thereof, and you will note that I have underscored those particular portions of these two sections which make it necessary for all employes to become members and maintain membership in our organization as a condition of continued employment under our rules and working conditions agreement with the Company, except in such instances where membership might be denied employes for any reason, other than failure to pay or tender periodic dues, initiation fees, and assessments (not including fines and penalties).

L. B. SNEDDEN
Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees
Washington, D. C.

•

STILL MORE COMET COSTS

To The Editor:

I was interested to note the item: "More On Comet Costs," which appeared on Page 11 in your issue of August 18. There seems little doubt that the operating cost per *hour* of a jet transport will be higher than that of a piston engined plane, and it remains to be seen whether, and to what extent, this is offset in practice by the higher speed of the jet type.

I believe that there is a discrepancy in the aircraft company's inter-office memo in regard to comparative fuel costs, the result of which is to exaggerate the difference between the respective operating costs of the Comet and the DC-6B. It is stated that the figure of 17½c per gallon for jet fuel was that quoted by de Havilland, whereas the figure of 21½c per gallon is evidently a typical delivered-at-airport price for Grade 100/130 gasoline.

The selling price of aviation gasoline is usually based on the f.o.b. refinery price, plus a differential to cover the cost of transportation, storage, and handling. In the United States, this differential generally covers delivery into airport storage tanks. Outside the United States, it usually covers delivery right into the airplane's tanks.

Price Differential

The current posted price f.o.b. Gulf for tanker lots of Grade 100/130 gasoline ranges from 16.0c to 16.75c per gallon and it is evident that a differential of 5½c per gallon over the low has, therefore, been used in arriving at the price of 21½c. The current posted price f.o.b. U. S. Gulf for kerosene such as is used by the Comet would be about 9⅛c and thus, if the same differential is applied, the comparable price at the airport would be 14⅝c per gallon and not 17½c as shown. On this basis, the fuel and oil cost per hour for the Comet II would be $145.78, thus reducing the total operating cost per hour (1949 ATA Method) to $342.23, instead of the figure of $370.89 shown.

To avoid further confusion or misunderstanding, it might be as well to point out that there is an important difference in the methods of handling into-plane deliveries of aviation fuel within the United States and at most overseas airports. The usual procedure in the United States is for the oil company to deliver fuel to the airport storage and from there on the airline (or sometimes a local service organization) handles the fuel and delivers it to the aircraft. Outside the United States, the usual procedure is for the oil companies to conduct the entire operation, to have their own refueling equipment and servicing personnel on the airport, and to deliver the fuel into the aircraft's tanks. It seems to this writer that the latter is the more efficient and economical method.

Many are prone to assume that a "delivered into airport storage price" is the same as the "delivered into plane" price. Obviously costs are incurred in delivering the fuel from airport storage to the airplane's tanks; in the United States, these costs are an addition to the cost of the fuel as billed by the oil company and I presume are carried by the airline as a separate item in its operating costs. Abroad the price charged by the oil company for the fuel includes delivery into plane.

Yours very truly,

A. R. OGSTON
Esso Export Corp.
45 Rockefeller Plaza
New York 20, N. Y.

Delta Millionaire Dream Vacations

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extended to

Traditionally, Miami's winter season runs from December 15 to April 15 when Delta's budget package picks up and runs through to November 30. But this year, in response to a record-breaking season, Delta and Miami Beach hotel associates have extended the vacation period to December 15, making it possible for the first time for you to sell Miami Beach the year around.

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Sept. 23-24—Air Transport Association, Ticketing & Baggage Committee, Roosevelt Hotel, New York.

Sept. 23-25—Air Transport Association, Engineering & Maintenance Conference, Saxony Hotel, Miami Beach, Fla.

Sept. 25-26—Radio Technical Committee for Aeronautics, Fall Assembly, Statler Hotel, Buffalo, N. Y.

Sept. 26—Corporation Aircraft Owners Association, Annual Meeting Blackstone Hotel, Chicago.

Sept. 29-Oct. 1—National Electronics Conference, Sheraton Hotel, Chicago.

Sept. 30-Oct. 2—Aircraft Spark Plug & Ignition Conference, Champion Spark Plug Company, Toledo, Ohio.

Oct. 1-4—Society of Automotive Engineers, National Aeronautic Meeting, Aircraft Engineering Display and Aircraft Production Forum, Statler Hotel, Los Angeles.

Oct. 3-4—Air Reserve Association, National Convention, Roosevelt Hotel, Los Angeles.

Oct. 6—Aero Club of S. California, Annual Banquet, Roosevelt Hotel, Los Angeles.

Oct. 9-10—Airport Management & Operations Conference, Oklahoma University, Norman, Okla.

Oct. 10—Third Noise Abatement Symposium, Armour Research Foundation of Illinois Inst. of Technology, Chicago.

Oct. 10-11—American Society of Tool Engineers, Int'l Area Meeting, Statler Hotel, Buffalo, N. Y.

International

Sept. 15-19—IATA, Eighth Annual General Meeting, Geneva.

Sept. 16—ICAO, Statistics Division (STA), 2nd Session, Montreal.

Sept. 19—Conference of the Revision of Rome Convention (under auspices of ICAO), Rome.

Sept. 19—IATA Traffic Committee, Geneva.

Sept. 26-28—Aero. Medical Association, Interim Meeting, Paris.

Oct. 21—IATA Traffic Conferences, Nice.

The plane air travelers ask for by name

Every day, Boeing Stratocruisers lift off the runways at the rim of America. Climbing to the east, south and west, they head for the smooth upper air over the Atlantic and Pacific, and a few hours later land at skyports in Europe, South America, Hawaii, Japan.

These big, luxurious, double-decked Boeings, though in service less than three years, have flown over 80 million miles. They have transported more than 1,400,000 passengers, half of them along over-ocean routes.

The Stratocruiser, known as "The Boeing" by its skippers and crews, already is an undisputed box office star. Airline ticket agents report that more and more travelers are asking specifically for the Stratocruiser. Pan American's Boeings outbound from New York to Paris and to Rome are typical examples. Their loads have averaged right up to capacity all summer.

Besides such manifest passenger appeal, the Boeing Stratocruiser is establishing an outstanding operating record. This is not surprising because for years Boeing has concentrated on building multi-engine aircraft.

Boeing's unmatched engineering and production experience has resulted in such airplanes as the Stratocruiser and its versatile sister ship, the military C-97 Stratofreighter; the famous B-17, the B-29 and B-50 Superforts, the sensational six-jet B-47 Stratojet — and the newest and most advanced of all, the giant eight-jet B-52 Stratofortress.

Fleets of Boeing Stratocruisers are in service on **Pan American World Airways, Northwest Airlines, United Air Lines** and **British Overseas Airways Corporation.** For the Air Force, Boeing builds the B-50 Superfortress, B-47 Stratojet, C-97 Stratofreighter; and is now starting production on the B-52 Stratofortress.

BOEING

STRATOCRUISER

Question:

What animal has become a regular commuter between South America and the United States?

Answer:

The race horse. Air transportation now enables top-flight race horses to run in successive meets even though the tracks are thousands of miles apart.

Question:

Which Aviation fuel in the U. S. A. today flies the most air freight?
. . . the most passengers?
. . . the most air mail?

Answer:

SHELL AVIATION FUEL

SHELL

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, N. Y.
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

Editorial

Time for Re-Examination

A BROAD bi-partisan joint inquiry by both houses of Congress into the vast defense program is almost a certainty at next year's session.

A full-scale re-examination and re-evaluation is badly needed. Only Congress can conduct it.

Apparently the Defense Department is well aware that its planning and procurement are to come under close scrutiny because Secretary of Defense Lovett has made anticipatory moves lately to effect consolidations of purchases among the three armed services and has launched a study of manpower uses.

by W. W. P.

But the Defense Department will be unable to stave off an exhaustive investigation and review by Congress. Periodic check-ups by the legislative branch are as natural as rain and as traditional in the U.S. as each year's corn crop.

The seeds for a joint inquiry were planted just before adjournment early in July by leaders of both parties in both the House and Senate. An informal agreement was reached that an inquiry would be sought as soon as the new Congress convenes. It is unlikely, however, that much can be put into motion before early spring because each house must authorize the inquiry, and then funds must be appropriated for technical assistance.

Like many other large-scale Congressional moves, there is no single causative origin for the one now in the making. Rather it is a widespread feeling that a great many things are wrong with the entire defense program and in the planning and in the duplication of efforts by the three major armed services.

Waste Rampant

It is a feeling that waste and extravagance are rampant. It is a feeling that procurement methods need to be vastly improved and that there should be closer cooperation with manufacturers on questions of design and availability of spare parts and of materials to be used. It is a feeling, particularly, that the money is not being spent for the right things.

It is no secret that Congressmen were skeptical and disappointed at answers given to them by Defense Department officials and brass appearing before last session's appropriations committees. It is no secret either that Congress is disturbed at the inability of the independent units to mesh their programs into efficient over-all planning.

It would be completely wrong to believe that the inquiry is to be motivated by moves for drastic economy for economy's sake. Congress has shown its willingness to appropriate all possible funds for basic defense needs. But there is a widespread feeling that the country is not getting maximum firepower for minimum funds—that manpower, raw materials, and the inherent efficiency of U.S. industry are being wasted and frittered away through over-planning, duplication, rivalry among the three services, and just plain bad management.

Air power will most assuredly be one of the main topics of the inquiry, but in the main the aircraft industry has very little to worry about. Congress, as well as the public, is "sold" on air power.

But Congress is concerned about costly duplication of some programs, such as the individual guided missile projects by all three armed services. It will unquestionably inquire into the aircraft carrier program of the Navy. It will seek a re-evaluation of the air roles of the three services. It will devote time to the vast air base program on foreign soil, and will want to know more about big bombers, jets of all types, whether refueling is being exploited sufficiently, and a host of other items.

An Opportunity

Here will be an opportunity, we hope, for the aircraft industry to educate Congress on the need for economic stability, the costliness to the country of peak-and-valley production, the vital role of research and the need for continuing research without breaks, and the importance of long-range planning both by the military and the industry.

When Congress began appropriating huge sums for the new defense program after Korea, it expected results. It received ample promises. The results have been disappointing, in some instances dangerously so.

New modern airplanes are not only costly but require a lot of time to build. But too much of the defense effort was diverted to non-essential activities, to the building of obsolete tanks and other weapons, and not enough effort was concentrated on the maximum firepower we need now. There is little doubt that the defense program was over-planned, partly due, at least, to the determination of each service to get an arbitrary share of the total funds regardless of whether it needed them. Never has so much money been spent by this country with so little control.

But it is clear that the thinking men in Congress are concerned with much more than production schedules and details. They are concerned about the survival of our country. There is a limit to the economic and material resource loads which we can stand, especially when so much is wasted. Congress wants a strong defense, with air power uppermost, within our means. If the leaders have their way, a joint inquiry—bi-partisan in nature and direction—will crystallize within the coming months.

. . . WAYNE W. PARRISH.

Allison jets power first mass refueling flight

Confidence in the dependability of Allison jet engines is again demonstrated by history's biggest transoceanic jet plane flight. Three squadrons of Republic F-84G Thunderjets completed the 10,895-mile movement, across vast expanses of the Pacific, from Turner Air Force Base, Georgia, to Tokyo. En route, pilots of the Thirty-First Fighter Escort Wing successfully completed air-to-air refuelings—first ever attempted on a mass flight.

This history-making flight, including 2,400 miles nonstop from California to Honolulu, demonstrates the mobility of American air power—and adds new laurels to the battle-proved record of the famed Allison J35 engine.

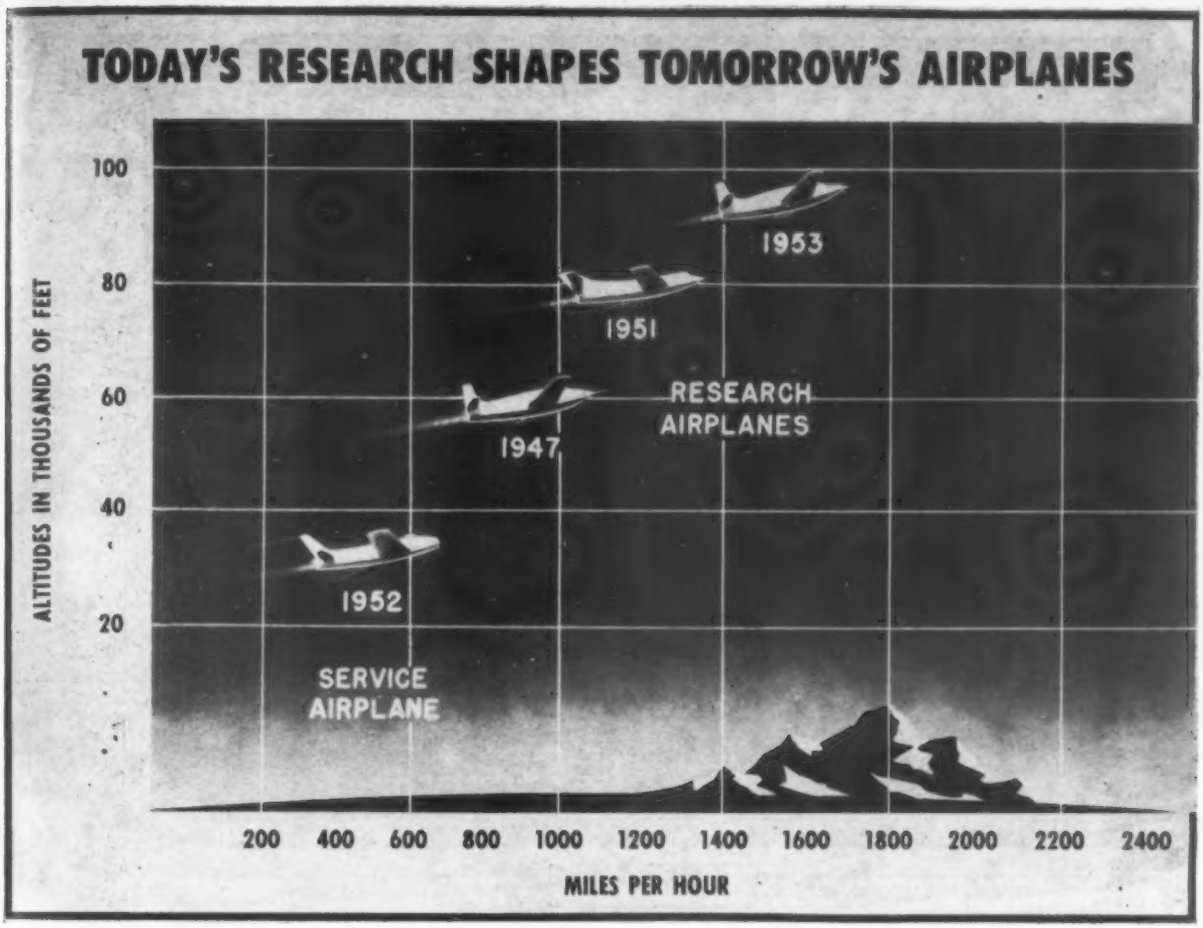
Another Allison First!

Designers and Builders of J35 and J71 Axial, J33 Centrifugal Turbo-Jet Engines, T38 and T40 Turbo-Prop Engines

GM GENERAL MOTORS

Allison

DIVISION OF GENERAL MOTORS
INDIANAPOLIS, INDIANA



LITTLE HAS BEEN SAID officially about what can be expected of the joint Air Force-Navy-National Advisory Committee for Aeronautics high speed research program from here on out. However, a semi-official indication of what can be expected is shown above.

The chart was released by NACA, without any specific figures for speed and altitude. Nonetheless, we are informed, it is drawn to scale. By supplying the missing figures one can draw his own graph and compute the speed and altitude NACA hopes to attain in 1953: a speed of more than 1,600 miles per hour and an altitude of close to 100,000 feet.

The figures on which the chart is based are about 600 miles per hour and 35,000 feet for the service airplane; 960 miles per hour and close to 60,000 feet for the 1947 research plane, which was the Bell X-1; and 1,238 miles per hour and 80,000 feet for the 1952 research plane, the Douglas D-558-II.

The 1953 research plane, incidentally, is the Bell X-2, although for security reasons the artist did not draw its exact configuration.

Strategic Bombing for Navy?

The Navy's announcement that it plans to use in-flight refueling for carrier-based aircraft revives an old question: Does the Navy plan to operate a strategic bombing force in competition with the USAF?

The announcement referred only to use of aerial refueling for jet fighters—the Grumman F9F Panther and McDonnell F2H Banshee were specifically mentioned—and certainly it is a logical development to extend the range of such planes just as the Air Force has done with the Republic F-84G.

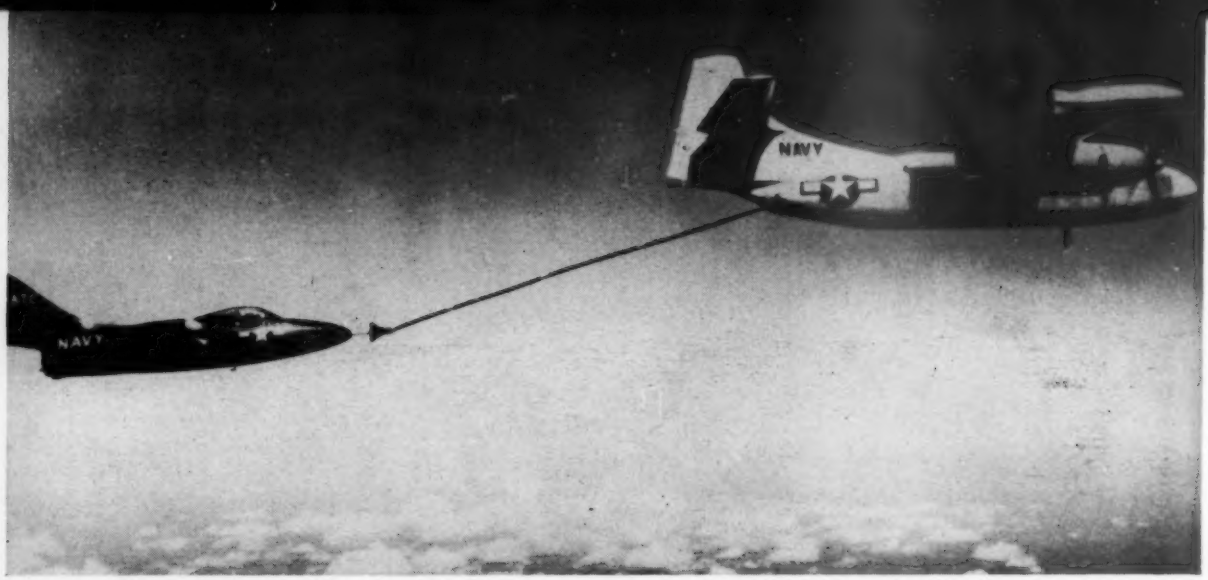
However, there lurks behind the announcement the suspicion that in-flight refueling might also be planned for such large aircraft as the Douglas A3D, a rather large, twin-jet bomber which the Air Force already views with suspicion. Now in a range category with the USAF's light bombers, the A3D's range could probably be extended to the medium bomber category with in-flight refueling.

The tanker in Navy refueling plans will be considerably smaller than the USAF's huge Boeing KC-97, necessarily so, since it must operate from a carrier. It will be a modified version of the North American AJ Savage with tanks in the bomb bay.

The Navy will also use the old "probe and drogue" method of refueling, in which the tanker lowers a hose with a funnel device on the end of it and the receiving pilot makes connection by means of a refueling lance. The USAF has already abandoned this system in favor of the "flying boom" system, but the flying boom is not adaptable to any carrier-based tanker since there is not enough room in the tail of any carrier based plane (such as the AJ) to seat a boom operator.

Possibly a later development in Navy refueling plans is a tanker version of the huge Convair R3Y turboprop flying boat, which could carry considerably more fuel, utilize the more efficient flying boom, and still operate with the fleet from a seaplane tender.

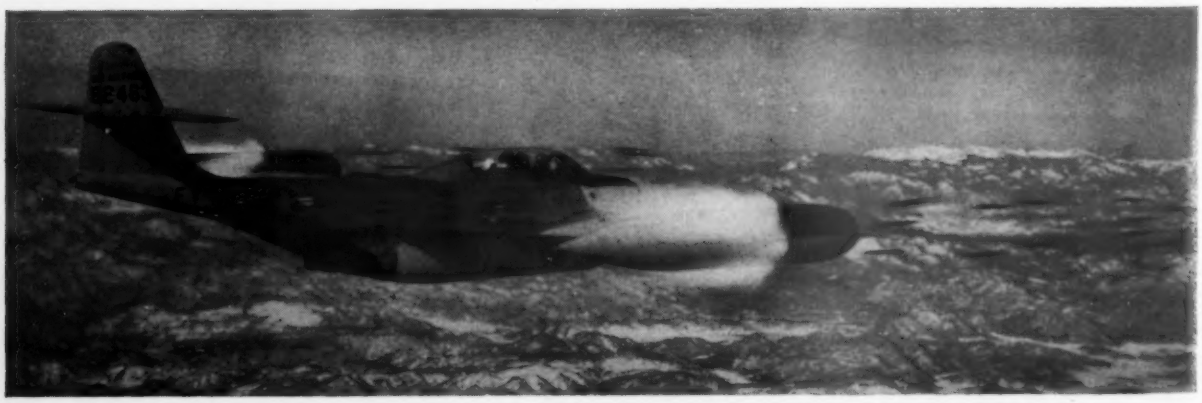
. . . JAMES J. HAGGERTY, JR.



New aerial tanker for Navy is this version of the North American AJ-1 Savage, shown here feeding a Grumman F9F.

Military Photo News

Wing-tip pods sling rockets for the Northrop Scorpion F89D, as the USAF reveals that its most heavily armed fighter carries the 2.75-inch missiles in this location. The arrangement, about which no details were released, is said to provide a wider pattern of fire and improved visibility for the crew during firing (right and below).

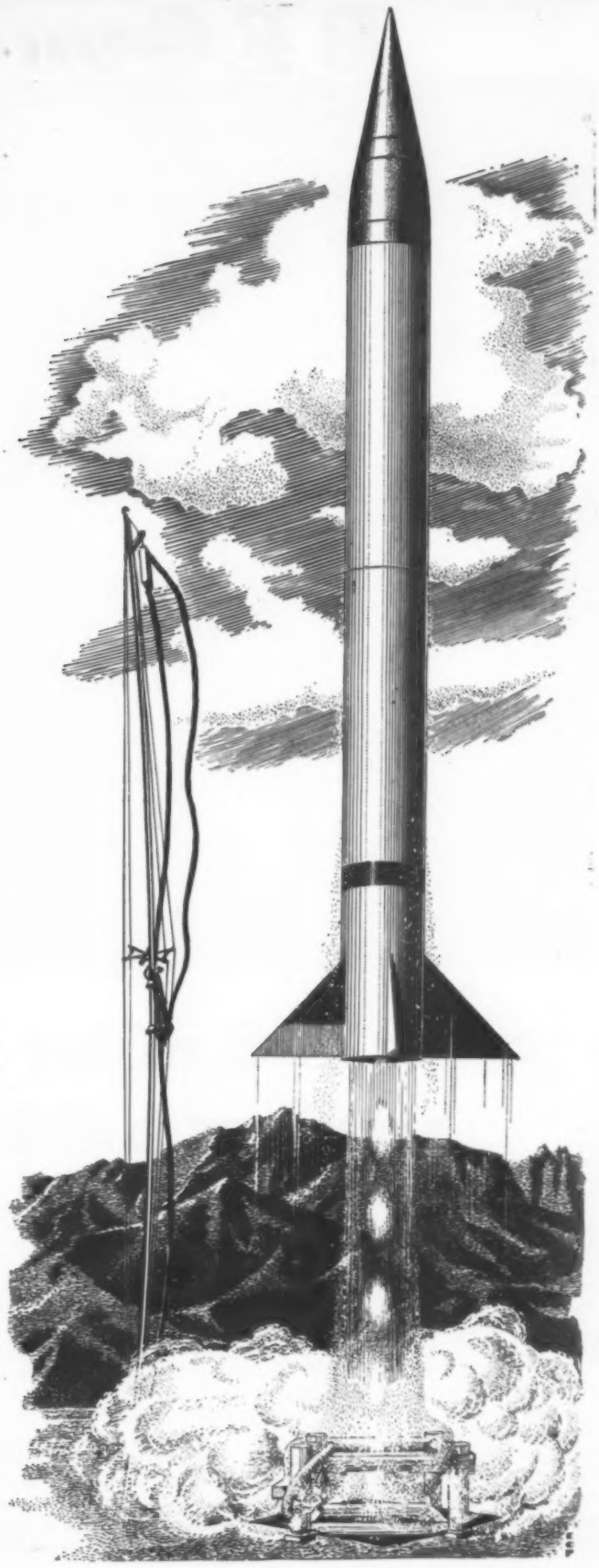


Research Rides a Rocket

The Naval Research Laboratory's Viking rocket research at White Sands Proving Grounds, N. M., hunts facts, figures and formulas in the upper atmosphere.

HURTLING far into the blue, Naval Research Laboratory rockets ask questions of the earth's upper atmosphere . . . flash back the answers needed to guide the designers of tomorrow's piloted and pilotless super-altitude systems for peace or war. What are the pressures and temperatures of the earth's atmospheric layers . . . the high-altitude changes in the earth's magnetic field affecting navigational instruments . . . the alterations in radio waves caused by the ionosphere . . . the effects of sun spots on communications equipment out beyond the filtering effects of the earth's heavy atmosphere?

Martin Viking rockets play a major role in this high-altitude flight research program. Last summer, the Viking cracked the world's altitude record for single-stage rockets . . . nosing 136 miles into the heavens at a top speed of 4100 m.p.h. Now, an even more powerful Viking is being readied for launching. The Martin Company is proud to be a partner with the Naval Research Laboratory in these vital activities . . . helping to prove that America's most valuable secret weapon is its scientific leadership! THE GLENN L. MARTIN COMPANY, Baltimore 3, Md.



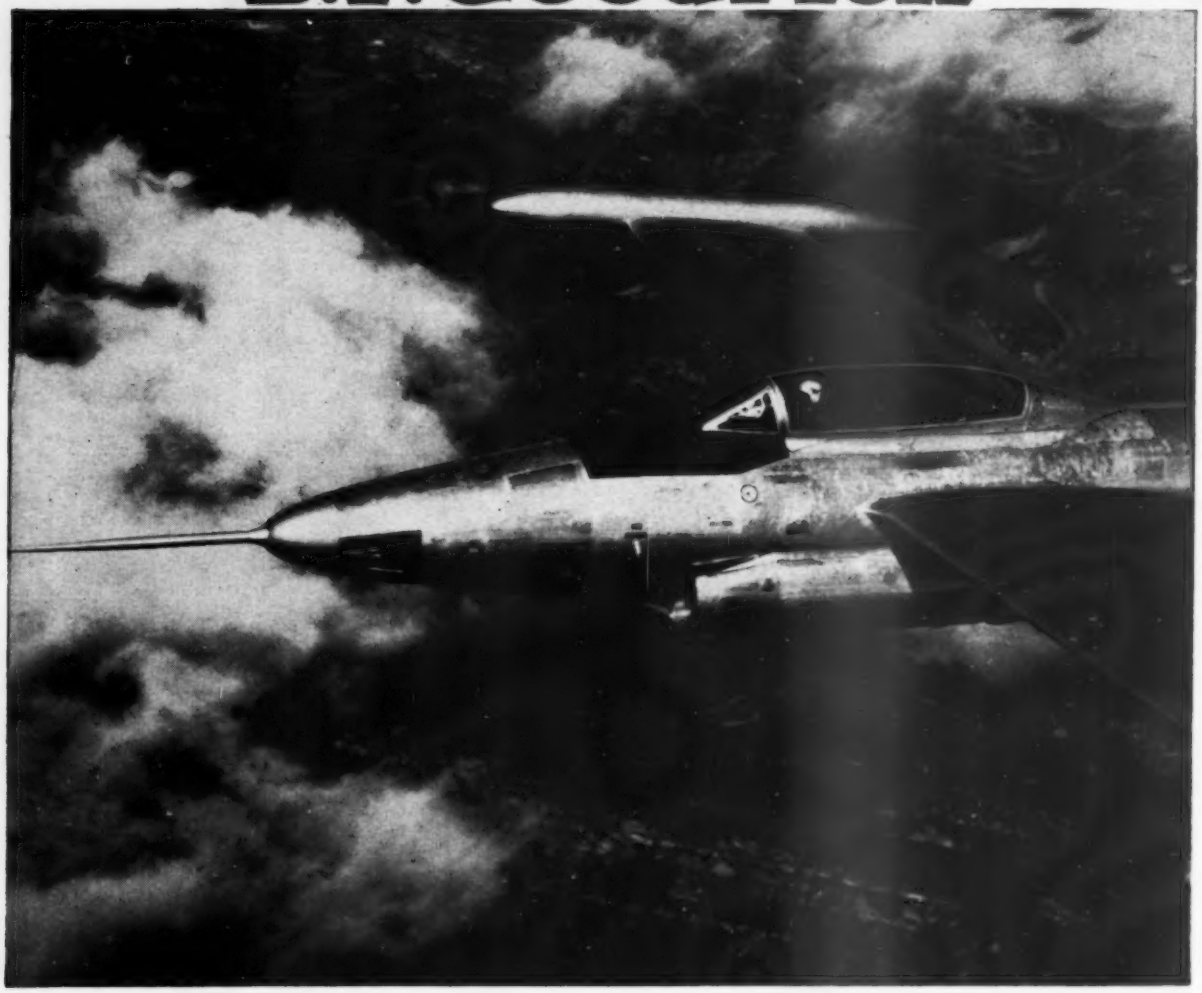
Martin

AIRCRAFT

Builders of Dependable Aircraft Since 1909

Developers and Manufacturers of: Navy P5M-1 Marlin seaplanes • Air Force B-57A Canberra night intruder bombers • Air Force B-61 Matador pilotless bombers • Navy P4M-1 Mercator patrol planes • Navy KDM-1 Flower target drones • Navy Viking high-altitude research rockets • Air Force XB-51 developmental tactical bomber • Martin airliners • Guided missiles • Electronic fire control & radar systems • **Leaders in Building Air Power to Guard the Peace, Air Transport to Serve It.**

B.F.Goodrich



8 miles high without bubble trouble

THE CANOPY BUBBLES on fast military airplanes, like the Northrop Scorpion above, had to be safely pressurized at altitudes of 8 miles or higher. But the ordinary inflatable seals between bubble and cockpit couldn't take the effects of high pressures on the inside, low pressures on the outside.

B. F. Goodrich engineers, called in by the customer, studied the problem. A really effective seal, they believed, should stretch very little or not at all. Less stretch would mean lower pressure, less strain. They worked out a seal with a solid base fastened to the rim of the cockpit and a rubberized fabric covering that simply *lifts* when inflated to form the sealing tube. When this tube inflates, it works like blowing up a paper bag—low pressure brings it to its full expansion and doesn't stretch the fabric enough to notice it. Dangerous stretching of tube wall (like blowing up a toy balloon) is eliminated.

The new seal works almost instantly. Even at minus 65° it inflates with less pressure than old-type seals needed at room temperature. There are other advantages. It resists wear and damage better than ordinary seals. It fits complex curves better. It seals and unseals faster. Sliding wear and scuffing are minimized. It has proved so superior that it has been adopted by McDonnell Banshee, Chance Vought Cutlass, North American Sabre and other airplanes besides the Northrop Scorpion.

This new type seal is one of many developments for aviation that has come from B. F. Goodrich rubber research and engineering. Other aviation products include tires, wheels and brakes; heated rubber; De-Icers; Avtrim; Plastilock adhesives; Pressure Sealing Zippers; fuel cells; Rivnuts; accessories. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

B.F.Goodrich
FIRST IN RUBBER

ESTABLISHED JUNE 1, 1937

American Aviation

VOLUME 16, NO. 8

FARNBOROUGH, world symbol of aviation progress in the postwar era.

New Jets Make Their Bow at Farnborough

Delta-wing bomber, Javelin fighter star in military field; Handley Page reveals transport design.

FARNBOROUGH, England — Kick-off for the annual Flying Display and Exhibition of the Society of British Aircraft Constructors was an announcement that a new competitor has entered the jet transport sweepstakes—a long-range 50,000-pound payload Handley Page plane capable of carrying up to 150 passengers in a high-density version.

1954 Prototype

This is not just another design study—Handley Page will actually build at least a prototype, and the company has had discussions with British Overseas Airways Corp. about a possible production order, although BOAC has made no commitment at this stage. There has been no official mention of dates, but it is understood that Handley Page is thinking in terms of production in 1956 or 1957, with the prototype flying about late 1954.

Jet transport talk dominated the Farnborough scene with the first public appearance of the turboprop triplets—the Bristol Britannia, the production Vickers Viscount, and the Saunders-Roe Princess flying boat, as well as the first Comet IA (in Canadian Pacific colors). The wraps also came off two other very interesting designs—the Scottish Aviation Twin Pioneer and the Fairey Rotodyne.

The Fairey Rotodyne is a 31,000-pound convertiplane with 13,000 pounds useful load, 40 passenger seats, and a cruising speed of 175 knots. The Rotodyne is powered by gas turbines driving a five-bladed rotor and two tractor propellers.

The Twin Pioneer, capable of operating from a 300-foot strip, is a 16-seat feeder transport powered by two 570-hp Alvis Leonides.

Center of military attraction at the show was the futuristic Avro 698 delta-wing jet bomber, a four-jet plane stated to be capable of flying faster, higher, further, and more economically with a bigger bomb load than any comparable aircraft. The British government has ordered "an appreciable number" of 698's off the drawing board and it looks as if the bomber will join the ranks of Britain's "super-priority" aircraft projects.

Most newsworthy of the six "super-priority" planes at Farnborough is the Gloster GA-5 Javelin all-weather fighter, the first British delta-wing combat aircraft. It can carry sufficient fuel for much longer ranges than is usual in a jet fighter, and has an exceptionally low landing speed (a tail parachute makes possible further deceleration on landing). Its span is 52 feet; length, 57 feet; and height, 17 feet.

Another military plane unveiled at Farnborough was the English Electric Canberra T. Mk.4, a trainer version of the Canberra "super-priority" jet bomber. Two experimental Canberras were also on show—one with two 10,000-pound Bristol Olympus engines and the other with a pair of re-heat Rolls-Royce Avons.

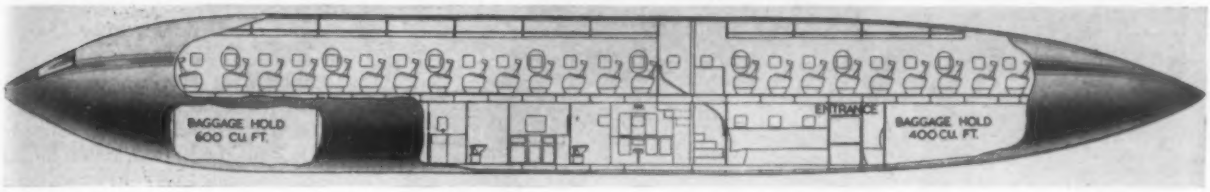
Fast Fly-Pasts

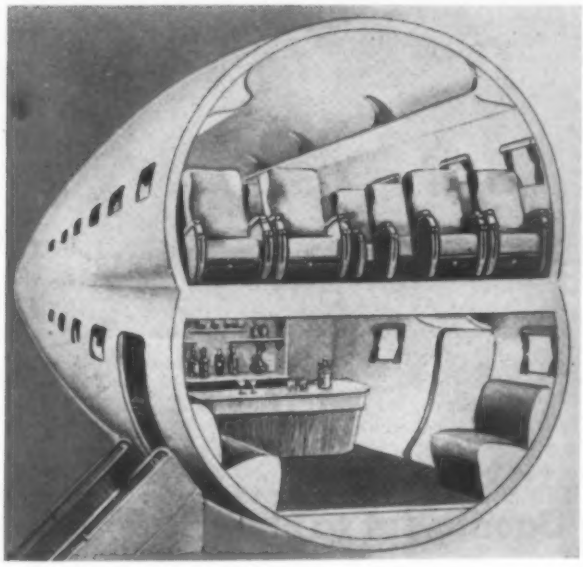
Some of the fastest fly-pasts ever performed at an air show were witnessed by spectators as a quartet of super-speed fighters were put through their paces. These very high speed planes, all of which were described as supersonic, included the Javelin, the de Havilland 110 (another all-weather, swept-wing plane) and the day-fighter "twins"—the Hawker Hunter and the Vickers Supermarine Swift, two almost identical swept-wing planes, each powered by a Rolls-Royce Avon. All but the DH 110 are currently scheduled for production.

AVRO'S 698 delta-wing, four-engine jet bomber, a super priority production item, makes its first appearance.

ANOTHER DELTA-WING product of Britain's industry, the Gloster GA-5 Javelin all-weather fighter performs for visitors at Farnborough (left). Below, the Saunders-Roe Princess flying boat taxiing prior to take-off. Note the droop in the wings of the ten-engine turboprop transport.

The Handley Page Jet Transport—ETA: 1954





VITAL STATISTICS of the HP 97, scheduled for 1954 prototype testing—1956-1957 production—include 50,000-pound payload, 96-passenger luxury interior or 150-passenger tourist version. Company claims the HP 97 will fly the 3,455-mile London-New York trip with 122 passengers and baggage in 6½ hours. Freight compartments will hold 1,000 cubic feet of cargo. On the Cairo-Karachi 2,210-mile run the HP 97 is designed to carry 148 passengers plus 8,500 pounds cargo and mail at about one cent per passenger-mile.

Among the non-flying exhibits was a Fairey rocket-powered, delta-wing model which has completed a series of test flights on the pilotless-weapon testing range at Woomera, Australia.

New Turboprop

Engines displayed included a new turboprop just unveiled, the Napier Eland. It is a single-shaft type driving a single-rotation, constant-speed propeller. The engine features an axial compressor, six combustion chambers, and an axial flow trubine. Specific weight is extremely low—about 0.5 lb./hp. Take off power at sea level is 3,000 ehp. Maximum diameter is 36 1/16 in.; length, 104.5 in.; dry weight, 1,575 pounds; specific weight, 0.525 lb./hp.

This year's Farnborough scene accented Britain's determination to maintain her lead in jet transports without interfering with military development and production programs. Examples of this could be seen in the Sprite Comet, an experimental version of the famed jetliner designed to evaluate the military application of the Sprite assisted-take-off rocket, which has an output of 15,000 lbs./second.

Another model making its first appearance and arousing combined civil-military interest is the twin-engine Bristol 173 helicopter. British European Airways will use this 10/12-place model, and the Royal Air Force's growing interest in rotorcraft operations indicates that a military order is likely. British and Canadian military interest in the turboprop Bristol Britannia is rated high, and the news that the Indian Air Force has ordered the Vickers Viscount shows that the smaller turboprop model has a bright military future in addition to being a promising commercial transport.

Farnborough proves that British designers still have something to offer the world, but the fruit of their efforts will never be fully reaped until Britain's aircraft industry can find a way of accelerating its production. British planes often reach the flight stage from the drawing board in an amazingly short time, but the prototype-to-production time compares unfavorably with other countries. Present production rate of "the world's most wanted aircraft"—the Comet—is one per month, even though the plane has been flying for several years and has entered scheduled airline service without encountering any serious "bugs".

Farnborough is undoubtedly the world's best shop window, but to ensure commercial success the stock room must carry the goods on display.

On the scene at Farnborough were four AMERICAN AVIATION *staff members, including Wayne W. Parrish, editor and publisher of American Aviation Publications, and military editor James J. Haggerty, Jr., of the Washington staff. Mr. Parrish will proceed to the IATA General Meeting in Geneva and Haggerty will tour NATO countries for a first-hand account of defense preparations in Europe.*

New IMATA President

The Independent Military Air Transport Association has elected its first permanent president since O. Roy Chalk's resignation last June, naming Ramsay D. Potts, Jr., former special assistant to Stuart L. Symington.

Howard Korth, who served as interim president, has been appointed as chairman of the board of directors. The group also announced the resignation of Ben B. Edwards, executive director.

SHOPPING? E. V. Rickenbacker, center, president of Eastern Air Lines, shown at the controls of a Vickers Viscount during his recent trip to Great Britain. At the right, George Edwards, chief Vickers designer and designer of the Viscount and Valiant.

Boeing Jet to Fly in '54; EAL Eyes Comet

Commercial jet transport plans revealed by Boeing as Rickenbacker asks 1956 delivery on Comet III's.

By ANTHONY VANDYK

INTRODUCTION of jet transportation in the United States moved appreciably closer last week with the announcement by Boeing Airplane Co. of plans to build a commercial jet transport and an indication by Captain E. V. Rickenbacker that Eastern Air Lines has a genuine desire to operate the de Havilland Comet.

Company Financed

The Boeing project, company-financed, will be demonstrated in prototype form in the summer of 1954, according to Boeing president William M. Allen. The Seattle manufacturer's announcement refers to a plane "of new design." Industry observers, noting the early flight date, believe that the jet transport will be modelled after the B-52 bomber which Boeing is building for the Air Force.

If the prototype flies on schedule in mid-1954 a year of service testing must intervene before the plane will be ready for production, according to industry experience in such matters. Assuming optimistic production rates (three planes a month by early 1957), it will still take Boeing at least until late in 1958 to equal total scheduled production of the British Comet.

Nevertheless, it looks as though Boeing will be well ahead of other U. S. manufacturers with jet transport projects; both Douglas and Lockheed have been showing off brochures on projected jet transports but neither has as yet made any official announcement of when the prototype would be ready for flight tests.

Indicative of the present state of U. S. jet transport progress is Eastern Ar Lines' desire to order 35 Comet III's (this is the stretched-fuselage 140,000-pound version of the Mark II) subject to guaranteed performance and 1956 delivery.

Captain Rickenbacker, the company's president and general manager, has said he would also take two or three Mark II's for training and jet experience. If de Havilland cannot deliver the planes until 1957 Rickenbacker might still buy, as even in that year he considers that the Comet would put Eastern 2½ years ahead of other U. S. operators. Before closing a deal on 1957 delivery, however, he "would have to give closer consideration to the Douglas DC-8."

Although de Havilland has offered 50 Comet II's for delivery in 1955, Rickenbacker has rejected the proposal as he considers this model too small for his requirements. He has, however, proposed to the British manufacturer that a Mark II Comet be operated experimentally on Eastern's New York-San Juan route for a few weeks with the two companies splitting the cost.

The main difficulty in selling Comets to U. S. operators is slow delivery: present output is only one aircraft a month, and no plans for an ultimate rate of more than three planes have been announced. Various solutions have been proposed. Rickenbacker sees three ways out: (1) 24-hour work days at de Havilland; (2) advice by a U. S. production team; and (3) sale of production license to a U. S. manufacturer. H. Mansfield Horner, president of United Aircraft Corp., has suggested the marriage of the Pratt and Whitney J-57 with the Comet airframe.

Losing Money?

Horner has criticized British Overseas Airways' Comet I service as a prestige operation which is losing money (BOAC is reported to have made a "clear profit" equivalent to $8,500 for the first two months of the service; this figure did not include aircraft depreciation but did take into consideration all overhead on the route—including personnel and facilities at stops—and a proportion of training and development flight costs.) He said that to compete economically with the Comet, at least double the British jet transport's power would be needed.

Another statement that present jet aircraft are uneconomical comes from C. R. Smith, president of American Airlines, who attributes this to high initial cost and high fuel consumption which cuts sharply into payload. He claims a jet of the Douglas DC-6 size would require 20.4 pounds of fuel per mile against the piston-engine plane's 8.9 pounds. Although a jet engine may cost five to 10 times as much as a piston engine, cost per hour of total life operation may be 10 to 20 times that of present piston engine costs, and dependability is still less than desired, Smith added.

Brazilians to Sell DC-4's

Cruziero do Sul, Brazilian airline has ordered four Convair 340's, will sell two Douglas DC-4's in the U. S. to raise funds for a down payment on the new planes.

Six Months Financial Report: 15 Domestic Trunk Airlines

	Total Operating Revenues		Total Operating Expenses		Net Operating Income		Pass. Load Factor	
	1952	1951	1952	1951	1952	1951	1952	1951
American	$84,217,069	$72,400,387	$74,070,731	$55,297,951	$10,146,338	$17,102,435	71.74%	77.10%
Braniff	9,096,303	8,531,539	8,495,200	7,153,314	601,103	1,378,226	62.61	66.44
Capital	18,063,786	18,556,838	18,226,239	17,007,988	(162,453)	1,548,850	54.89	59.94
C & S	6,697,972	5,312,774	6,247,727	4,998,051	450,245	314,723	61.83	66.63
Colonial	2,373,516	2,346,125	2,747,580	2,438,302	(374,064)	(92,177)	46.90	53.94
Continental	4,900,252	3,610,568	4,661,280	3,146,485	238,972	464,082	52.11	51.85
Delta	14,463,288	12,757,899	12,322,115	10,356,146	2,141,173	2,401,752	64.88	67.41
Eastern	55,604,481	50,363,716	49,185,388	39,336,200	6,419,093	11,027,517	61.40	65.94
MCA	4,171,785	4,229,193	4,061,007	3,965,502	110,778	263,692	54.18	56.93
National	14,579,624	14,162,336	11,848,309	10,321,506	2,731,315	3,840,830	65.32	67.05
Northeast	2,870,594	3,289,225	3,421,258	3,200,858	(550,664)	88,367	54.37	58.52
Northwest	15,976,226	14,509,786	17,465,015	14,987,407	(1,488,789)	(477,621)	65.43	59.59
TWA	50,273,979	44,210,525	45,546,182	40,922,229	4,727,797	3,288,297	75.43	73.98
United	66,122,781	49,437,723	55,701,283	42,689,067	10,421,498	6,748,656	70.62	75.12
Western	8,421,702	8,093,876	7,262,533	6,769,092	1,159,169	1,324,784	64.43	65.36
Totals	$357,833,358	$311,812,510	$321,261,847	$262,590,028	$36,571,511	$49,222,413	N.A.	N.A.

Industry Finances: A Mid-Year Report

AIRLINES: Despite a 15% increase in gross operating revenues, net operating income of the 15 domestic trunk airlines included in the table above was down $13 million during the first six months of 1952 under the comparable period in 1951. The airlines are still making money but the year 1952, which will be the biggest traffic year in airline history, will see about 25% less profit than did 1951, if the trend continues.

Net operating income of the 15 lines reporting to date was $36,571,511 on a gross business of $357,833,358. This compares with $49,222,413 net operating income in the first six months of 1951 on a gross of $311,812,510. This was no great surprise. The airlines experienced a 22% hike in operating expenses during this period.

The resulting drop in working capital is the end result the airlines sought to avoid when, earlier this year, they attempted to introduce a $1 service charge on all tickets and the removal of round trip discounts. At that time the airlines claimed the two measures would net $28 million per year. The $14 million half-yearly revenue would have just about handled the need.

The local service airlines were also hard hit. During this first six months they lost $978,180 on total revenues of $18,426,906. This contrasts with a profit of $121,022 for this same group in the first six months of 1951 on $17,022,946 gross operating revenue.

MANUFACTURERS: Profits in the aircraft and engine manufacturing industry are up about 25% for the first six months of 1952 as compared with the same period in 1951, a survey of major companies shows.

Net operating income, after taxes, of these companies was $39,053,213 in the first half of 1952 compared with $29,644,495 last year. Six companies paid higher dividends for this period, two paid less, and one paid the same amount.

In this case net income is misleading. Profits are up but the increase is very slight in proportion to the increased business. Gross sales for these companies was almost double ($1,618,687,129) in the first six months of 1952 as compared with 1951's first half ($847,659,613). The companies are expanding rapidly, employment is up sharply, all the headaches of double the business are present, but profits are out of proportion. The increased taxes introduced in late 1951 are a major factor in this situation.

The companies surveyed here have existing backlogs of over $12 billion of the estimated $13 billion in aviation.

Six Months Financial Report: Selected Aircraft Manufacturing Firms

	Net Income After Taxes		Earnings Per Share		Sales		Backlog
	1952	1951	1952	1951	1952	1951	
Beech‡	$1,218,916				$ 66,983,567	$ 21,959,237	$200,000,000
Bell	894,184	$1,059,242	$1.01	.87	58,536,145	35,316,663	420,000,000
Boeing	5,877,875	3,090,074	3.62	2.85	309,761,374	168,150,199	1,200,000,000
Convair**	4,012,196	4,133,322	1.69	1.75	183,835,795	144,648,801	1,000,000,000†
Douglas**	4,383,680	3,708,814	3.65	3.09	196,000,000	96,000,000 (approx.)	2,100,000,000
Martin	1,209,885		1.07		66,151,239		400,000,000***
North American‡	5,200,000	4,450,000					741,216,826
Northrop‡	1,694,825	2,215,000	2.95	4.92	132,651,000	60,500,000	317,000,000
Lockheed							1,576,485,000***
Republic	2,626,225	1,349,532	2.61	1.34	134,526,855	52,281,021	933,384,786
United Aircraft	8,600,319	6,307,922	2.49	1.77	323,691,593	185,220,572	1,310,000,000
Curtiss-Wright	3,335,108	3,330,589	.34	.34	146,549,561	83,583,120	1,050,000,000†
Totals	$39,053,213	$29,644,495			$1,618,687,129	$847,659,613	$12,248,086,612

† As of June 30th with exceptions as noted.
‡ 9 months—fiscal year.
** 6 months ending May 31.
*** Estimates.

SIKORSKY S-55 looks good to LAA.

Report on Sikorsky's S-55: LAA Likes It

Completion of 100-hour tests by Los Angeles Airways and new orders make prospects bright.

By Fred S. Hunter

THE FIRST Sikorsky S-55 helicopter to see commercial service has completed its 100-hour tests for Los Angeles Airways, as required by the CAB, and that carrier has placed orders for three (and, if possible, four) additional S-55's. On the opposite side of the continent, New York Airways has announced that it has three of the aircraft on order, and will start mail service between New York's three major airports soon.

With military counterparts in wide use and with the commercial picture thus brightening rapidly, details of what Los Angeles Airways has discovered during its tests of the S-55 take on considerable significance.

LAA operations manager Fred Milam reports the company's pilots are highly pleased with the ship's performance. He said all indications are the craft will make greatly improved performance possible on the exacting short-range, feeder-type routes the air mail carrier flies. LAA averages a stop every eight minutes.

The S-55 is capable of payloads up to 1,600 pounds at the presently certificated maximum gross weight of 6,835 pounds. This is about double the S-51's capacity. The best of LAA's three S-51's can carry 900 pounds and loads on the other two fall below 800 pounds.

Even better payload capacity is ahead. Subsequent certification for a maximum gross of 7,200 pounds is expected. Structural strengthening for the higher gross already has been incorporated in the machine through the adaptation of military models for Wright R-1300 engines, which have 700 hp for takeoff. The LAA S-55 is equipped with a P & W R-1350 engine producing 600 hp for takeoff.

Clarence Belinn, LAA president, also thinks there are excellent possibilities for additional payload boost through reductions that can be worked out in the operating empty weight, as much as 250 pounds. An 85-pound battery, for example, can give way to one weighing 50 pounds. He believes methods of reducing both the amount of trapped fuel and oil can be evolved. He also has his eye on some structural modifications.

Milam's operations department is setting up plans to hold stops to 60 seconds with the S-55 equipment. This will mean a saving of two to three minutes on the ground compared to the S-51's time, and will speed up schedules materially.

The S-55's door is loadable at the ground level and is large, being four feet wide and 36 inches high. Equally important in accomplishing 60-second stops is the S-55's 11 inches of CG travel, which means virtually no CG problem.

Proving Runs

In the proving runs, LAA tried out couriers to handle the mail and thus free pilots from juggling the pouches and doing the accompanying en route paper work. The couriers will be continued unless experience demonstrates they don't pay their way.

LAA conducted the 100-hour proving run over the route segment between Los Angeles International Airport and San Bernardino. CAA inspectors rode many of the flights. All were daylight runs. As a precautionary measure the carrier decided to wait until after the full 100 hours had been put on the machine before starting the 10 hours of night flying required by the CAA for approval for night operations and before attempting any rooftop operations.

Both will proceed after some minor modifications in the aircraft. Instrument flight will await the arrival of the second S-55 this fall.

LAA pioneered helicopter instrument flight with its S-51's and has a wealth of experience. Milam expects a much simpler job with the more stable S-55 equipped with the larger, manually operated stabilizers recently developed by Sikorsky in place of the automatic stabilizers now used.

S-55 Changeover

Following are the changes and modifications LAA is setting up for incorporation in the S-55:

- Fabricate bracket for landing lights
- Relocate landing lights
- Relocate landing light switches
- Add navigation light on tail cone
- Install warning light, cargo door
- Relocate cargo compartment light switch
- Fabricate loading light
- Stencil on cargo door "Closed During All Refueling"
- Mark off cargo compartment: forward (C-9), center (C-10), aft (C-11)
- Relocate entire radio, battery, inverters, etc. compartment into the cargo compartment and make present electrical compartment into the baggage compartment
- Fabricate door stop
- Fabricate bungee for pilot's seat
- Install overhead ring—headset
- Fabricate clipboard holder
- Rearrange switches and safety guards over servo battery and generator
- Safety belt ring on forward bulkhead
- Auxiliary fuel pump—automatic
- Support throttle cross shaft
- Rework air filter for quick removal
- Relocate inductor vibrator
- Fabricate ring cowl clips
- Install test carburetor mixture temperature indicator
- Relocate carburetor mixture
- Relocate amp-voltmeter
- Install electrical instrument system
- Install dual instruments, left side: (1) manifold pressure gauge, (2) dual tachometer, and (3) air speed indicator

During the period of the proving run, LAA ran performance tests for approval of 80-87 gasoline in the operation of the S-55, which had been certificated using 91 grade fuel. The former is cheaper and LAA also prefers it because of the lower lead content.

LAA's maintenance procedures for the S-55 are set up on the basis of thorough trip and daily inspections together with two classifications of period inspections. Inspection forms are designated M-1 for the trip and daily inspections, and M-2 and M-3 for the periodic ones. The latter are divided into short and long inspections.

The trip inspection consists of checking the aircraft for basic flight preparedness by performing visual inspections, checks, examinations, and functional tests to discover defects or maladjustments. It starts off with the pilot's report on engine operation and communications.

Unusually Complete

The daily inspection, which is accomplished during each flying day of the aircraft, is unusually complete and notably so in the inspection of the rotor system and the transmission system.

The daily M-1 form lists 55 items for inspection in the rotor system, broken down as follows: main rotor blades, eight; vertical hinge assembly, four; sleeve, spindle and horn assembly, nine; main rotor plates, three; rotor rotation, five; dampers, 11; droop restrainers, four; star assembly, four; tail rotor, 11.

Transmission inspections total 31, as follows: servo controls, six; main gear box, five; intermediate gear box, two; tail gear box, two; clutch and fan assembly, nine; free wheel unit, four; main drive shaft, three.

The M-2 short inspection is conducted within 25 to 30 hours of accumulated flight time since the last M-3. The M-2 long inspection is conducted within 50 to 60 hours since the last M-3, but not more than 30 hours since the last M-2 short.

The M-3 short aircraft and engine inspection is conducted after 120 hours of flight time and the M-3 long inspection after 240 hours. A third periodic inspection in the M-3 category is a major inspection of the aircraft only at 480 hours. LAA's engine overhauls are performed by Pacific Airmotive Corp.

Later, probably when it has taken delivery of its third ship, LAA will initiate progressive overhaul with S-55's.

With the S-55 CAA-certificated for passengers and LAA's certificate of public convenience and necessity from the CAB authorizing passengers, the Los Angeles helicopter carrier would need to go through little official formality to start hauling fare-paying passengers. About all it would have to do is file a tariff.

A start may be made on a selected segment (probably in the Anaheim-Fullerton area) late in 1953.

The eventual expansion of helicopter passenger service into the populated areas, such as downtown Los Angeles rooftops, seems unlikely to be a function of the S-55. This development toward the mass feeder transportation market will probably await a twin-engine helicopter. Clarence Belinn, for one, hopes Sikorsky will speed the twin job on which it is working.

Engine Operation Check List

Engine rpm:

Take off	2,250
Minimum cruise	2,100
Idle minimum	850
Idle desired	900

Cylinder Head Temperature

Maximum	260° C.
Minimum	120° C.
Desired	150° C. to 232° C.

Fuel Pressure

Maximum	6 psi
Minimum	4 psi
Desired	5 psi
Idle min.	3 psi

Manifold Pressure:

Take off	36.0"
Maximum continuous	33.5"
Minimum cruise	20.0"
Idle	16.0"

Oil Temperature

Maximum	85° C.
Minimum	40° C.
Desired	60° C. to 70° C.

Oil Pressure

Maximum	90 psi
Minimum	60 psi
Desired	70 psi to 80 psi
Idle min.	25 psi

Servo System Pressure

Maximum (System relief valve setting)	1,250 psi
Maximum normal	1,000 psi
Minimum normal	850 psi
Desired	1,000 psi

Carburetor Mixture Temperature

Maximum	20° C.
Minimum	5° C.
Desired	5° C. to 15° C.

Magnetos (@2000 rpm & 20")

Maximum drop	120 rpm
Desired drop	75 rpm to 100 rpm
Max. diff. drop	40 rpm

Generator Voltage

Maximum	28.0 volts
Minimum	27.5 volts
Desired	27.5 volts

Generator Amperage

Normal	18 amps to 20 amps

Main Gear Box Oil Temperature

Maximum	120° C.
Minimum	20° C.
Desired	20° C. to 100° C.

Main Gear Box Oil Pressure

Maximum	90 psi
Minimum	10 psi
Desired	37 psi to 45 psi

Clutch Engaging rpm

Maximum starting	1400 rpm
Maximum final	1900 rpm
Desired starting	1150 to 1200 rpm

(Pilot technique will cause these figures to vary.)

Inverter Voltage

Maximum	125 volts
Minimum	105 volts
Desired	110 volts to 120 volts

Main Trouble; Blades

Blade trouble ranked foremost in Los Angeles Airways' report on discrepancies during the 100-hour proving run of the Sikorsky S-55. Failure of the bonding to hold up was the main difficulty. The carrier's scorecard read as follows:

- Two-inch separation of No. 4 pocket, bottom side.
- Six-inch separation of No. 4 pocket, top and bottom.
- Four-inch separation of No. 15 pocket, top.
- Six-inch separation of No. 1 pocket, top.

When these separations occur, the blades have to be returned to the Sikorsky factory at Bridgeport, Conn. to be re-worked. Reason for the failure of the bonding to hold up has not yet been determined. It may be due to flexing of the blade, to the bonding material, or to the way the material is put on.

The experience, incidentally, was not unexpected by LAA's maintenance department. It has been having the same sort of trouble ever since it began using metal blades on its S-51's. The carrier has 200 hours on one set of blades, but 150 hours has been the maximum it has been able to get out of any other metal blades on the S-51's before factory overhaul.

Interview

with

SIR WILLIAM P. HILDRED

Director General

International Air Transport Association

*

World Air Transport in Perspective

* * *

Sir William Percival Hildred, C. B., O.B.E., as Director General of the International Air Transport Association, presides over the organization's Eighth Annual General Meeting which convenes in Geneva this week. Hildred has served as IATA's Director General since March 31, 1946.

Prior to joining IATA, Hildred, 49, served in key posts in the British government, both in and out of aviation. His non-aviation posts included Finance Officer to the Empire Marketing Board, head of the Special Measures Branch of the Ministry of Agriculture and Fisheries, and Deputy General Manager of the Exports Credit Guarantee Department.

Becoming Deputy Director General of Civil Aviation for the U.K. in March, 1938, Hildred served as Principal Assistant Secretary in the Air Ministry early in World War II and later as an aid to Lord Beaverbrook in the Ministry of Aircraft Production. In 1941 he served in Montreal, assisting in the establishment of the RAF Ferry Command. This was followed by appointment as Director General of Civil Aviation in the United Kingdom in October, 1941. In 1945, upon separation of civil flying from the Air Ministry, Hildred was appointed head of the Ministry of Civil Aviation.

Hildred, who manages to read five books a week, finds time for his reading, music, and woodworking hobbies by frequently putting in a 19-to-20-hour day. He is a veteran of World War I, an Officer of the Order of the British Empire, and Companion of the Order of Bath. He was knighted by King George VI in 1944. Among other honors, Hildred is a Grand Officer of the Order of Orange-Nassau, appointed by Queen Wilhelmina of the Netherlands, and Commander of the Order of the Crown of Belgium.

Q. A substantial number of international carriers are wholly or partially owned by governments. Do you see an extension of government ownership in the next ten years?

A. To my knowledge there has been no recent increase in direct government ownership. There have been increases in the measure of government control as a result of loans or grants made by governments to various airlines. Whether or not this will continue as a 10-year trend depends on whether the airlines can avoid the necessity for this sort of financial accommodation in the future. I have no doubt they will avoid it.

There can be government control without government ownership and it is control, rather than ownership, which very properly presents problems for the airlines. I can think of some airlines which do not have a penny of government capital but which, notwithstanding, are subject to very severe government control.

Q. There are many international airlines who do not belong to IATA. Many of these offer lower fares. How can IATA members compete with these cut-rate carriers?

A. The international carriers who are members of IATA today account for slightly more than 95% of the world's scheduled international air operations. There may be—and are—quite a few international carriers who are at present outside IATA but I think the only really significant exceptions are the Russian Aeroflot and the Chinese.

Both would be welcome if they cared to come into IATA, although I don't quite know how we should get along with the unanimity rule if they did come in. Neither of them represents a really important measure of international competition.

There are also a few largish independents in South America, in the Middle East, and in the Far East. But, by and large, the problem of the small carrier outside IATA is essentially regional and at most gives rise to local inflammation.

Q. Does the recent admittance of three French independent carriers to IATA membership imply any change in policy towards the independents?

A. No, it does not imply any change of policy. The Articles of Association of IATA say that any air transport enterprise is eligible for membership if it operates a scheduled air service under proper authority in the transport of passengers, mail, or cargo for public hire between the territories of two or more States, under the flag of a State eligible to membership in ICAO. If any enterprise meets those conditions, then it becomes eligible and automatically we welcome it.

Q. A number of all-freight carriers seem to be doing pretty well. Do you see non-scheduled air freight operations for the future comparable to the tramp steamers of the sea?

A. No. The non-scheduled air freight carriers have shown a tendency, once they get established, to apply for schedule certificates in order to hold on to that business. That has definitely been the trend. If such applications are successful, again, they become scheduled, certificated, and eligible to join IATA.

There has always been a need for some sort of tramp operations in the air to fill emergencies and casual demands; but I don't think the tramp steamer of the air will be like

the tramp steamer of the sea because air traffic is not so susceptible to tramping.

Q. What do you feel about the possibility of giving scheduled certificates to current non-scheduled cargo operators in the North Atlantic?

A. This is a matter for the U. S. government to decide. My personal reaction is that the scheduled airlines on the North Atlantic are already providing scheduled cargo service and are entirely able to expand that service to meet the demand.

Q. How is IATA's enforcement system working?

A. Within the limits of manpower, the enforcement system is working very well indeed. We have got one man only. At present it is more educational than punitive. Its mere existence acts as a deterrent against the commission of breaches. It is finding breaches and throwing a useful light—this is what I mean when I say "educational"—on the wording and the meaning of the Traffic Conference resolutions which guide our conduct.

The enforcement system will be continued and expanded as and when we can obtain the necessary staff.

Q. You indicate that you had about $120,000 in fines. Could you give some idea what type of fines they were?

A. Yes. Some are for carrying people free without proper authority. There is a big difference between an airline being told, on a piece of parchment with a seal on it and ribbons four inches thick, that they must carry the Duke of Plaza Toro, and on the other hand getting a note from the little fellow from the local ministry of civil aviation who is trying to hitchhike and pretending he is a great government official.

Between those two types of cases there is a great field for reasonable doubt and searching of heart. Another case is where agents, without proper authority or not living in the proper area, have been getting commissions, cases where airlines have been doing business with agents who are not certified. There are cases where free travel has been swapped for an indeterminate amount of publicity.

$50 to $20,000

Q. Could you give us an idea of what the largest fine was?

A. I think the fines would vary from a purely nominal one of about $50 for a technical breach to something in the neighborhood of $20,000.

I think the biggest loop-hole I have found so far is that many of the resolutions on which we are working are the result of compromise. We get a compromise resolution and the result is that it inevitably gives rise to honest doubt. Sometimes a man may breach a resolution rather because the resolution itself is not abundantly clear and simple. The Traffic Conferences, year by year, will take a further look at the resolutions which have given rise to the breaches, improve, streamline, and clear them up.

Q. Much of IATA's operations appear to be rather secretive. The nature of the organization is such that it would appear you would get maximum benefit by a little more publicity. Since all airlines are public carriers, shouldn't their proceedings be more open?

A. We are doing a simple, tiresome job on behalf of governments and in the interest of air transport. If we can get the rates down, the safety statistics better and better each year, and people flying in greater comfort and greater numbers, we are happy and the result becomes known through IATA and in other ways.

The simple fact is that IATA's work goes on continuously in big and little groups, meeting all over the world. Until their proposals have had the approval of the Executive Committee, the General Meeting or the Traffic Conferences, we can't announce them as binding on the airlines and we can't even consider that they have any real and valid acceptance.

This inhibits us in putting out a constant stream of public announcements, but we are always willing to answer questions and to try to fill in background, even though we cannot always say categorically, "IATA believes so and so."

Q. In the United States, at the present time, there is a group drawing up a "user" charge program for the Federal Airways, a subject on which IATA has made a study. Wouldn't the views of IATA be helpful?

A. We have a good deal of world-wide information—but not enough—on the growing, indiscriminate increase of charges here and there for different services performed on airports or on the way to airports by the governments who provide the facilities. We are about to set up a charges working group which will take a look at all these charges, analyze them, and put our views to ICAO where representatives of all governments may see them.

I am not conscious that we have been invited, as IATA, to express a view on the legislation of the United States and we don't make a point of pushing where we are not invited. I can tell you it will be a very live issue at the next general meeting. We want to express a strong view that if governments begin to make the charges heavier and heavier, without any system or sympathy, they are setting the airlines back just when they are getting on their feet.

Q. It would appear that if the United States goes ahead on its own and adopts such legislation, it will severely influence legislation in other countries.

A. I think my best comment would be to make a statement of principle. The airlines certainly do not object to bearing a reasonable share of the cost of those facilities which governments provide for all aviation. There are three pertinent points:

- Imposition of these charges on a unilateral, arbitrary, and uncoordinated basis would be an injustice to the airlines and a deterrent to the development of air transport;
- Governments should not conclude that because a good many airlines have had a good year or two that their financial structures can stand the sudden imposition of heavy charges;
- We request all governments to refrain from hasty action in the matter. This is a world-wide problem which affects the carriers of all countries and the carriers of any one state in their operations over and into a good many others.

Q. Is IATA planning to keep its headquarters in Montreal indefinitely?

A. I would answer by saying, "It is not planning to move them." It is always very easy to think of somewhere else to go and live. I feel that to spend time thinking about

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these things is only disruptive. I think we are all right as we are.

Q. Do you see the time when cargo might equal or surpass passenger ton-miles and/or revenue?

A. No, I don't think so. Cargo traffic at present amounts to only 30% of passenger traffic in terms of ton-miles and its ton-mile revenue is still well below the passenger traffic either in volume or in revenue.

At the same time, of course, one can never be too certain; cargo traffic has increased 200% world-wide since 1947. And one never knows when there might be a sudden sort of geological fault and a further upward rush.

The future of cargo carriage is to a large extent tied up with the development of a specially designed cargo aircraft: as long as cargo is treated as fill-in load, its development tends to be restricted by capacity available. I think we should give still more thought to developing cargo, but even if we developed it to the top of its bent, I doubt if it would catch up with the passenger revenues in the foreseeable future.

From my point of view, we are more concerned with the amount of study we are putting into it than the present operations. The brain work is going on and it may be that in a short time the results of it will show in a more forward attitude in the practical sphere of operations. I expect to see cargo volume going up by 20% next year.

Q. Do you feel that aircraft especially designed for air cargo will be available to meet the demands and needs of cargo operators?

A. I believe that the non-existence of a purely cargo plane is hampering cargo development. If there were one, like every other facility, it would produce more business.

Q. Will IATA endeavor to have carriers standardize equipment for the European tourist services next year?

A. No, we shall not try to force anything. The Buenos Aires Traffic Conference resolution, which lays down minimum seating requirements for tourist aircraft on intra-European services, is pretty wide and catholic; it covers everything from the DC-3, with 21 seats, to the Constellation 749 with 59 seats and the DC-6B with 77 seats.

My belief is that the best airplane for tourist service is the newest and largest airplane, with as many seats in it as we can reasonably get into it. Old equipment is never an economy in any form of transportation.

Traffic Up 50%

Q. How have tourist fares on the North Atlantic worked out?

A. The first three months of tourism on the Atlantic show a 50% increase in passenger up-lift and an improvement in the first-class payload. The figures seem to show two things: a verg big, almost a phenomenal, rise in overall traffic, and no appreciable diversion from first class, indeed, a better earnings record for first class.

Q. When do you think tourist fares will spread to the Pacific and Far East?

A. I hope April, 1953. There, I have said it.

I am sure you will understand that, in saying that, my reply does not prejudice nor is it intended to predict the result of the next Traffic Conference. The discussion will be a hard one for this reason: the traffic on the Pacific is spread pretty thin; it is not a crowded highway like the Atlantic.

Some people think there is so slim a volume of traffic across the Pacific that a tourist service is premature; others take the view that if it is a trickle, let's get after it and make it a stream.

Q. Have you any comments on the elimination of free road transportation in certain European countries?

A. Yes, I think it is a definite trend. The Buenos Aires Conferences made a charge for this transportation mandatory except where the countries could not agree. It is the business of airlines to sell air transportation and I don't see any logic in persuading them to give away road transportation.

The important thing is that the practice should be uniform. Anything that infuriates the public hurts us and it is infuriating to passengers to be charged money one place and not in another, perhaps on the same trip.

Q. If a number of airlines in India and Australia were considering buying jet aircraft but lacked maintenance facilities, would IATA be interested in sponsoring a combined maintenance center in those two countries?

A. Administratively, I don't think it is our business —given our terms of reference—to sponsor that sort of project because we are nothing but a Secretariat; we have nothing to do with maintenance or operations or ramp service; but we would, of course, willingly supervise the study of such a project if we were asked.

Joint Handling

Q. Do you see any move toward a joint handling facility being set up and operated by national airlines of each country?

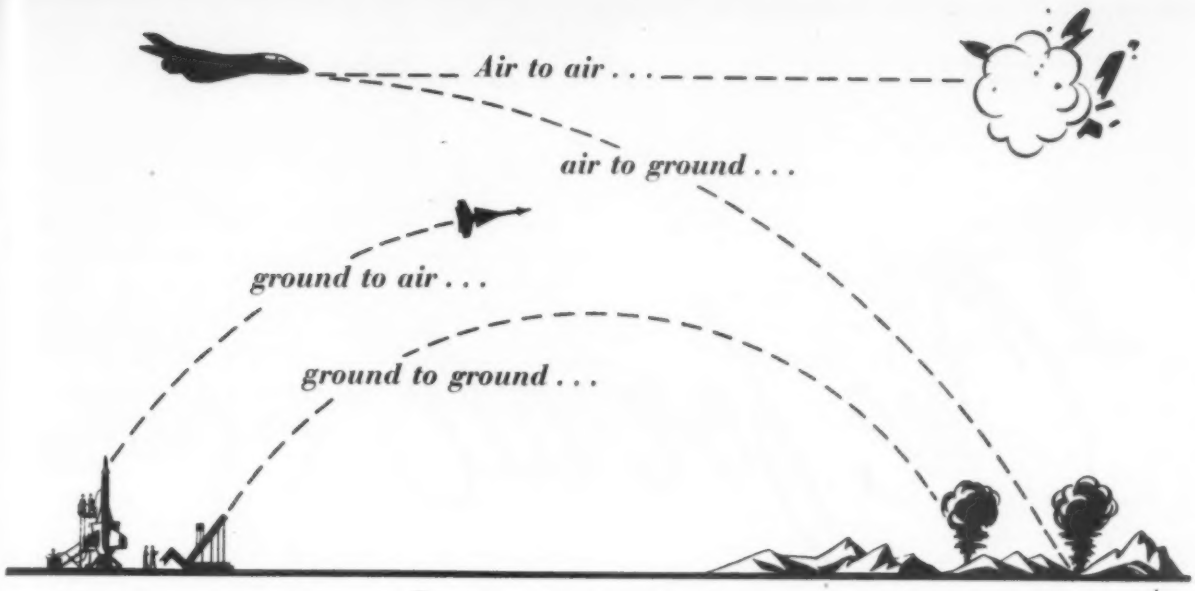
A. Yes, I think there is a tendency towards the creation of joint handling facilities in many parts of the world on the initiative of the carrier most concerned and most able by reason of his position to be the center pivot —that is the national carrier. We favor it in principle, but we feel the arrangements ought to be left to the airlines.

Q. Does the growing prosperity of the airlines mean that additional countries may enter into international airline operation?

A. I don't think the financial success would be a factor to the cabinet of a government. It is important, of course, but I don't think the success of airlines in other countries would make a government—which had not hitherto had an airline—start one. Rather, they might say, "We are a big country; smaller countries than ours have good international airlines; to represent ourselves in the world today, we ought to have one."

Q. Would you care to cite a few of the principal countries that appear to have international airline operation potential but still do not operate in this sphere?

A. I'd rather answer this in terms of areas, rather than countries, except for Germany and Japan, which are just waiting for the chance to get started again. There is a lot of planning and projecting going on in the Far East and Australasia, and some in Africa as well, although I



Douglas Guided Missiles

Increasingly important to the nation's defense, guided missile research and development has been a vital project at Douglas for more than ten years.

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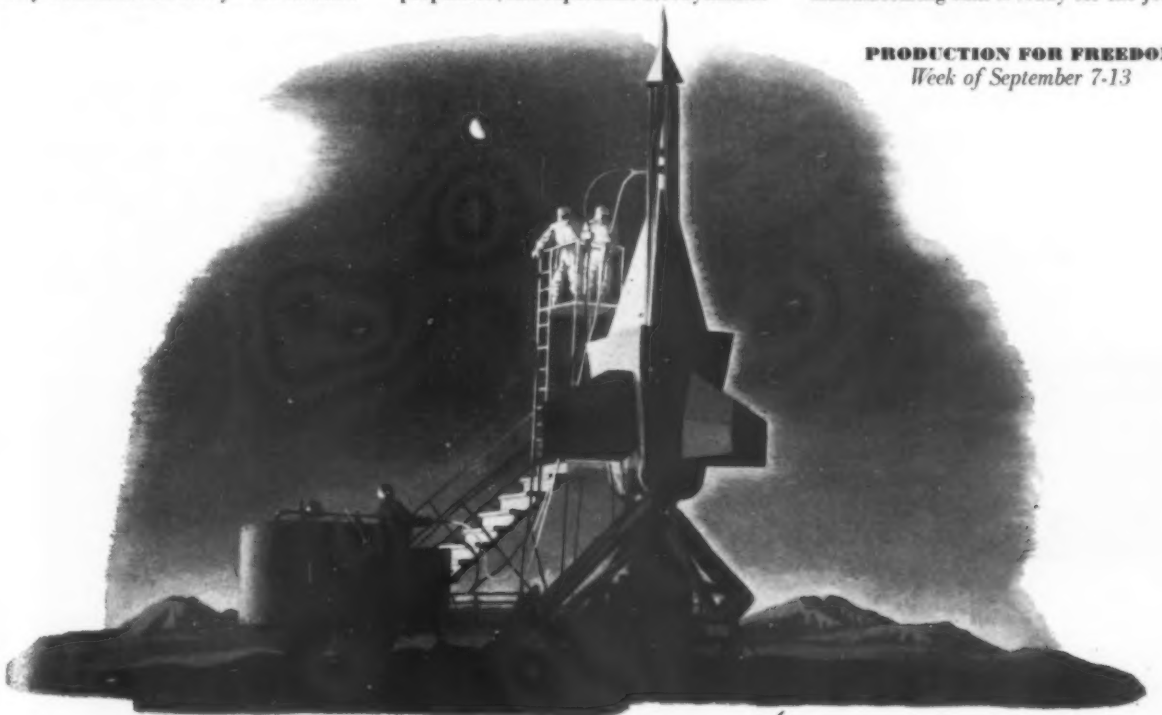
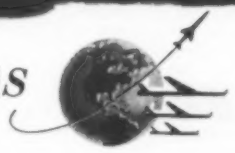


Depend on *DOUGLAS*  **First in Aviation**

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. . . IATA member capitalization: $1.5 billion

think that much of that continent is well looked after by existing airlines.

Q. Do you see any immediate prospect of early activation in these areas?

A. Yes, I think I do. We have heard a good deal indirectly and some of the prospective carriers have been in touch with us. The Japanese seem to be very interested and will be starting up as soon as government policy on international operations is laid down.

Q. What parts of the world are not served adequately by air transport today?

A. Asia and some parts of Africa. I think the continents of North America, South America, Europe, and Australia are in first-class shape. Australia claims to be the leader, indeed, in the intensity of operations.

I think the rest of the world is less well served, although whether the service can be properly called only "marginal" is a matter of argument.

Q. What percentage of the international airlines are operating in the black?

A. As nearly as we can tell from the reports which we see, it looks as though nearly all of the major carriers are running in the black this year, but some of the smaller ones are having a struggle.

$500 Million Payroll

Q. What is your best indication of the international airline capitalization—the annual payroll, equipment investment, and employment?

A. The capitalization of IATA member airlines, which are the only ones about which I can speak with any certainty but which do, as I have said, account for 95% of the scheduled international lift, totals about $1,500,000,000. About half of this is invested in equipment. The payroll of these airlines is on the order of $500,000,000 per year for approximately 220,000 employees.

Q. How long will it be before we can expect international air service with turbine-powered aircraft?

A. I should think 10 years from now might be a safe time to suppose that the major routes of the world will be served by this type aircraft.

Q. What important areas of decision for IATA have been brought about by the advent of the jet transports?

A. We know the broad categories of the problems which jet operations will raise for the industry, although we are looking actively for the hundreds of detailed ones which will result from actual experience with jets.

The IATA Jet Symposium at Asbury Park in 1950 pointed up the need for better communications, better upper air meteorological forecasting, better navigation aids in terminal areas and the like, and we have been going after them ever since. The main area of decision, I think, is the number of problems associated with air traffic control and approach and landing which are jointly produced by the higher speed of the jet and the fact that it isn't easy to stack, because of fuel consumption.

Q. To what extent do IATA and ICAO conflict?

A. I shouldn't describe our relations as conflicting. Our roles are clear: It is for ICAO to make up its mind about any technical thing and then advise the government to adopt it. It is for IATA to see what the operations people think about the technical thing, to bring together the opinions of people who are actually using it in the day-to-day work of their lives.

We put our case forward knowing that it represents the practical point of view of the man on the job and we put it forward cogently on paper and by sending representatives to argue the case. We do that not only in the head office in Montreal; we also send delegates to the regional conferences. If ICAO, for different reasons, does not accept fully what we have advised, we accept their refusal.

Better Airports Needed

Q. What major improvements are necessary in airline passenger service?

A. The major improvement of service that I see as necessary is better airports and a compact team of people who say, "We are going to get these people right through this airport as quickly as we can." I would cite the difficulty caused by delays at airports which are now having to carry a bigger traffic than they were ever designed for and therefore keep passengers waiting.

Q. Economically, how big is IATA's operation?

A. The average expenditure of IATA over the last seven years of its existence is about half a million dollars a year. This year we are asking for more because of the high cost of living in Montreal; but I hope to keep it indefinitely around the half million mark.

Q. Do you foresee any change in IATA's organization or size to cope with the rapidly changing airline picture?

A. No, I think not. We have, as you know, the head office here in Montreal. We have a clearing house in London and a technical liaison in London that looks after Europe; we have a branch office in Paris and a branch office and enforcement office in New York and a branch office in Singapore.

It is possible that the developments we anticipate in Conference Area Number Three, the Pacific Area—and Japan—may bring a greater degree of importance to the Singapore office than at present.

Q. How do you compare the safety records of the international operators with the United States operators?

A. The only safety figures which we have are those for the total operations of IATA members. The 1951 quotient of the international airlines was one-third better than 1950 and twice as good as 1948. The number of fatalities has dropped considerably, even though the total amount of flying by the airlines reporting went up 25% in 1951 as compared to 1950. Statistically speaking, it is down to 1.72 passenger fatalities per 100 million passenger-miles.

Q. Have operating costs increased in all parts of the world, as they have in the United States?

A. Yes, definitely. I do not know any part of the

'. . . go the limit to hold fares where they are'

world which is an exception to this world-wide inflationary trend in costs over the past two years—wages of crews, the price of gasoline, cost of spare parts and landing fees, etc. Fortunately, there have been a few signs that the upward trend has slackened a little and the situation should improve, as long as no new or unforeseen burdens are imposed on the airlines.

Q. Do you feel that these spiralling costs are going to demand higher fares?

A. As far as I have any influence on policy I would go to the limit to hold fares where they are in the hope that, having taken care of this much inflation by maximum efficiency, we can take care of still more with still more imagination and appeals to the public through the medium of tourism and other things.

Q. Is there a likelihood of IATA's role at Universal Postal Union congresses becoming more active as a result of the recent Brussels session?

A. It is difficult to tell. The UPU Congress is supreme in the settlement of its own affairs. I can only tell you that when the suggestion was made some time ago that IATA observers should be present at the last Congress in Brussels, some UPU representatives voted for it, some voted against it, and others, with a becoming blush, abstained from voting.

We have good relations with the International Bureau and with the Executive and Liaison Commission and I hope we may be able to maintain these good relations.

Respectful Shock

Q. What is your attitude on the newly established UPU mail rates for international carriers?

A. I can only describe my emotions as disappointment and respectful shock. We thought we were going to be allowed to discuss the matter fully; we were only allowed to make one speech, through one speaker, and then we were sent away. The room was ventilated and insecticided and then the Congress decided something else.

We can only say that even if they wanted to reduce the payment they made to us, it would have been better to have done it fairly slowly rather than dropping some routes from 6 gold francs to four, which is a 33⅓% drop.

Q. Do the airlines have any recourse from this?

A. No, it has been made clear that we are not permitted to negotiate. The supremacy of the Congress, whose acts are ratified as a matter of course by their governments, doesn't give us any chance to do anything but express surprise and shock; we haven't any remedy.

If they decide to bring these rates in they cannot come into effect before the 13th of July, 1953. Whether during the year people will see fit to abate that very big drop, I don't know.

Q. Do you feel the reduced rates will put any of the international operators in the red—from profitable business to unprofitable operations?

A. I would have said "Yes" a few years ago; but the percentage of our income which mail carriage represents is now smaller than it was—not because it has got any smaller but because its brother and its sister have got larger.

Q. What percentage of the total revenues do the mail revenues represent?

A. Mail constitutes about 6% of the over-all payload of the airlines in terms of ton-kilometers carried, while cargo runs about 20% and passengers about 74%. The figures are approximate and may be changing a little this year, but they will give you an idea of the picture.

Incidentally, in 1937 and 1938 mail was 13% and 19% respectively of the total payload, while the 6% figure has been pretty much the rule since the war.

Q. What are the major problems now facing international carriers?

A. I would say one of them is the question of regional fares, particularly in South America. Individual governments may find it rather attractive to think of negotiating between themselves a rate structure devoted to their traffic and limited to a region specifically and geographically determinable. This could readily have a disruptive effect on what we are trying to do, which is create a unified world-wide and flexible rate structure, the creation and maintenance of which is one of the most important commercial objectives of IATA.

Another one is the no-show and cancellation problem. I think American operators know this one only too well. It has not been as serious in the rest of the world because the frequency and complexity of schedules is not comparable with what you get in America; but it is beginning to break out in various parts of Europe.

To over-book a plane in the sure knowledge that a few people will be no-shows is always a bit of a gamble, but that has become the regular practice, I believe, in certain parts of the world.

Freight Forwarders

A third problem is that of the international freight forwarders. I don't think there is any problem in the United States, where the functions and the status of the international air freight forwarder are clearly defined and subject to the rule of law, but there is a lack of uniformity outside the United States on what such a forwarder is and how he should be fitted into the IATA program.

The main bone of contention is whether a consolidated freight forwarder should be allowed to quote rates which are lower than those provided for in the cargo structure laid down by IATA and whether he should be entitled both to the rebate, which he obtains by virtue of his consolidation of the freight, as well as the commission he can properly claim by virtue of having sold space on one or more member carriers.

The fourth problem is facilitation, or what might properly be called the adjustment of government protective practices. Regulations can make things difficult for the bona fide businessman and tourist and the airlines.

The newly revised ICAO Annex Nine is a step in the right direction if governments will implement it. The growing acceptance of what we call the single cargo invoice; the lessened demand for cargo documentation; the start, which took place between Toronto and America, of "pre-clearance"; the abolition of visa requirements as between many countries particularly within Europe and as between the United States and Europe; all these are progress.

I commend the governments for what they have done, and to some extent I criticize the airlines in various parts of the world for not being a little more pushing.

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THE 4,300-FOOT gravel strip at Dutch Harbor is surrounded by mountains and water. Note hill on immediate left. There is water at the foot of the mountain at the end of the runway. A left turn is made immediately after take-off, to fly over the water between the hills.

Reeve Aleutian: Alaskan Pioneer

Carrier fights some of the world's worst weather, takes off in winds up to 65 mph; here's how.

By Eric Bramley

One of a series of articles on Alaska by American Aviation's *executive editor, who has just returned from an extensive trip through the region.*

IF YOU LOOK at Reeve Aleutian Airways' timetable, you'll see departure times listed, but all intermediate points and terminals are marked with X's. The footnote states: "Arrival and/or departure time variable."

This probably makes Bob Reeve's airline the most "non-scheduled scheduled" carrier in the world. And for very good reasons. Reeve operates out of Anchorage, with three DC-3's, along the length of the Aleutian Islands, 1,715 miles to Attu. Partway out the Aleutian Chain, a trip hops off 330 miles across the Bering Sea to the Pribilof Islands.

The Chain weather is some of the world's worst. To try to maintain a schedule you'd have to be both crazy and lucky. In addition to the weather, the Chain has a few airfields designed to give the pilots bad dreams.

Until I flew out the Aleutians and to the Pribilofs with Reeve, I always thought that when there was fog lying on the ground, there wouldn't be any wind. But I saw it, so help me. Fog and a brisk breeze. I also saw the weather change from no ceiling at all to 23,000 feet in about half an hour.

You never know what's going to happen next. As one veteran put it: "This is where the weather is *manufactured*. How are you going to *predict* it?"

Another item that makes life interesting for Reeve's pilots is the wind, of which the Aleutians have a great abundance. Winds of 40 to 60 miles per hour aren't uncommon, and they're often much higher. A Weather Bureau employe told me that they've had them so high that they pushed the wind recording instruments off the end of the dial. Reeve lands and takes off in winds up to 65 mph, provided they're not crosswinds, of course.

Robert C. Reeve

Despite the weather, wind, overwater flying, and some unusual landing fields, Reeve Aleutian Airways hasn't scratched a passenger in the 6½ years it's been operating. It's one of Alaska's safest airlines. The two principal reasons are excellent pilots and excellent maintenance.

Of his pilots, Bob Reeve says: "Many are called, but few are chosen."

Jokingly, he adds: "Because of the general nature of the flying, and in order to keep pilots with us, it is company practice to take a pilot's pants and shoes away from him every time he returns to Anchorage from a trip, so that he can't escape to the States.

"At the end of a six months' probationary period, he gets his pants back; six months later we return his shoes. By that time he's toughened up, and decides that the route isn't so bad after all. The policy has been so successful that we've completed 100% of our trips since December, 1950."

Reeve's five pilots and five co-pilots, plus a chief pilot, are allowed to fly 8½ hours a day under a special CAB exemption, instead of the usual eight, because of the length of the route. Flight engineers are carried on the trips instead of stewardesses.

Absolutely Safe

A Reeve pilot is paid $9,600 a year, regardless of hours flown, up to 700 hours. This policy, says Reeve, encourage pilots to take only trips they feel are absolutely safe. Above 700 hours, they receive $12 an hour. An average pilot will fly 900 hours, making $12,000.

There are also raises for length of service. Each pilot is required to take a 30-day vacation each year. Reeve's pilots are non-union.

When you start out over 330 miles of the Bering Sea—a cold, bleak-looking body of water—in a DC-3, you hope that both fans keep turning all the way. Reeve's maintenance is designed to see that they do. Nowhere in Alaska did I ride in a sweeter-sounding DC-3 than with Reeve.

The Pratt & Whitney 1830 engines are overhauled at 750 hours, instead of the 1,000 to 1,500 hours in the U. S. All overhaul and maintenance is performed in modern shops in Anchorage.

Bob Reeve also claims that he insists on the strictest adherence to a manual of operations of any airline in the world. The pilots follow the book—or else. Tail wheels must always be locked when the aircraft is parked—heads have fallen when Reeve noticed an unlocked tail wheel.

Bob Reeve, whose titles are president, general manager, and superintendent of operations, is a native of Waunakee, Wis. In 1928 he was flying freight in tri-motor Fords between Buffalo and Chicago for the Ford Motor Co. Later, he joined Pan American-Grace Airways in Buenos Aires as superintendent of operations.

In 1932 he went to Alaska and started a bush operation out of Valdez, specializing in glacier flying—using skis to get off the mud flats in the summertime and landing on glaciers. His equipment was an Eagle Rock, later a Fairchild 51. He became one of Alaska's most famous bush pilots.

In 1940, the CAB issued Reeve a certificate for a bush operation, but he refused to take it, because, he says, "They gave four certificates to people around Valdez and there was only enough business for one."

He moved to Fairbanks, and two years later switched to Anchorage. For three years he flew along the Aleutians as a bush pilot and under contract with the Army—flying in weather that the military didn't care to buck. By this time he was using a Boeing 80-A.

In 1946 he applied to CAB for an Aleutian certificate, and started service in May of that year under a CAB exemption order. Flights to the Pribilofs started in 1947.

500 Miles

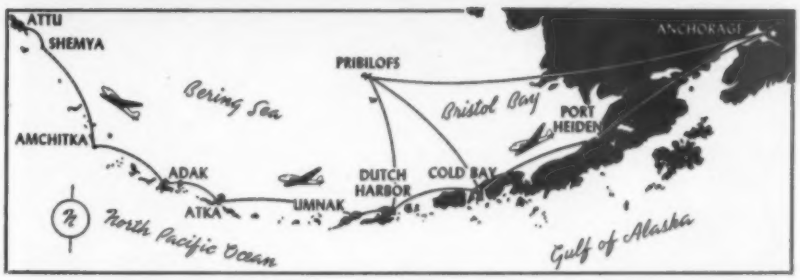
At present, the airline has three DC-3's, two Sikorsky S-43 amphibians, and one Grumman Goose. The latter three planes are used over some 500 miles of irregular non-mail routes on the Alaskan Peninsula and in the Shumagin Islands, off the Aleutians.

Three round trips a week are operated out the Chain. Traffic is substantial as far as Adak; service beyond that point is mostly on a demand basis. The Pribilof trip is made once a week year-round.

Reeve figures that the area he serves contains 5,000 people, exclusive of military. Traffic is 95% civilian, 5% military. It includes commercial fishermen, hunters, residents, construction workers, engineers, and military dependents.

At present, each trip carries about 1,000 pounds of mail and 1,000 pounds of freight. The mail includes air mail, first-class, and some second-class. It's a sore point with Reeve that a mail boat operates once a month from Seward as far as Umnak. The boat operator, he says, gets $270,000 a year for hauling the mail. Last year Reeve received $230,000 in mail revenue.

The airline's passenger fare averages about 17c a mile, but tourist fare to the Pribilofs is about 9c. General freight rate is 30c per pound, with a 15c-per-pound commodity rate.



MAP of Reeve Aleutian Airways routes.

In 1951, the airline, which has 46 employes, carried 3,529 passengers, and performed 39,233 ton-miles of freight service. Mail amounted to 75,656 ton-miles. Reeve scheduled 305,815 miles and flew 305,815 miles. Preliminary figures show that its net profit was $28,692.

Reeve's comptroller and chief accountant is Martha Rutledge, who was with Capital Airlines in Washington for several years. Maintenance superintendent is R. L. Hanson; communications superintendent is T. H. Wheaton. W. S. Upson, who was with Western Air Lines for many years, is chief dispatcher and assistant to the superintendent of operations. E. O. Strouse, former Air Force pilot, is chief pilot.

Reeve has one of the world's natural tourist attractions in the Pribilof Islands. The Alaskan fur seals, 2,000,000 to 3,000,000 of them, migrate to St. Paul and St. George Islands of the Pribilof group each year to have their young and to breed. Under contract with the U. S. government, the Fouke Fur Co. of St. Louis kills up to 70,000 seals yearly—for fur coats.

During a 24-hour visit to St. Paul you can witness a seal kill, watch the fights as the "beachmaster" seals chase the bachelors out of their harems, inspect the plant where skins are prepared for shipment, and ride around the island in Reeve's panel truck.

The pilot and co-pilot are your guides, and they do an excellent job. You stay in the U. S. Fish and Wildlife Service's hotel. The Reeve tour costs $160 plus tax from Anchorage, and it's worth every cent of it.

I made the 1,000-mile trip from Anchorage to the Pribilofs with Capt. R. P. "Pat" Baker, who flew the Atlantic for the Air Transport Command during the war, and First Officer Warren D. McLean, who was an ATC Hump pilot in India. The eight tour passengers sat in the rear. Most of the other seats had been removed to make room for the cargo and mail.

First leg of the trip was 423 miles to Port Heiden, a desolate, deserted military base with a lava dust runway. The population consists of a couple of Reeve employes—one of the S-43's is hangared there for the Shumagin operations. Reeve, incidentally, maintains its own point-to-point and ground-to-air radio at Anchorage, Port Heiden, Cold Bay, Dutch Harbor, and Adak. Much of the Chain flying is done on top, I was told.

But, as the pilots say, "It's pretty up here, but it ain't so nice underneath those clouds." Although there's some flat, swampy land near the water, the backbone of the Aleutians is a series of high volcanic peaks 8,000 to over 9,000 feet high. You have to know where you're going.

The "pretty" flying ended as we approached Cold Bay, an Air Force installation. We made a GCA landing (there's GCA at Cold Bay, Adak, and Shemya) in bad weather (minimums are 300 feet and ¾ mile): wind, rain, and fog.

Non-Directional Beacon

It was necessary to wait several hours at Cold Bay. St. Paul Island, our destination, was reporting a 200-foot ceiling. The only aid on that tiny island, 330 miles from nowhere, is a non-directional beacon, and the minimums are 700 feet and two miles for landing, 300 and one for take-off.

Then there was one of those quick changes. Cold Bay weather went from no ceiling to 23,000 feet. St. Paul had gone from 200 feet to 22,000 feet, scattered. The flight over the Bering Sea was in rare CAVU weather most of the way, but by the time we were approaching the Pribilofs it had changed again. The islands were covered with fog and for a while it looked like another 330-mile flight back to Cold Bay. However, the fog obligingly left a clear space above the "airport," and we landed.

The St. Paul field is an unpaved, unlighted 3,700-foot strip. The only structure of any kind is a small Quonset hut. Until Reeve started service, St. Paul received mail by boat four times a year.

The crew gets up at 4 a.m. the morning after arrival and arouses the rest of the party to go out and watch the seal kill, which takes place before breakfast. The rest of the day they serve as tour conductors.

The next morning we left for

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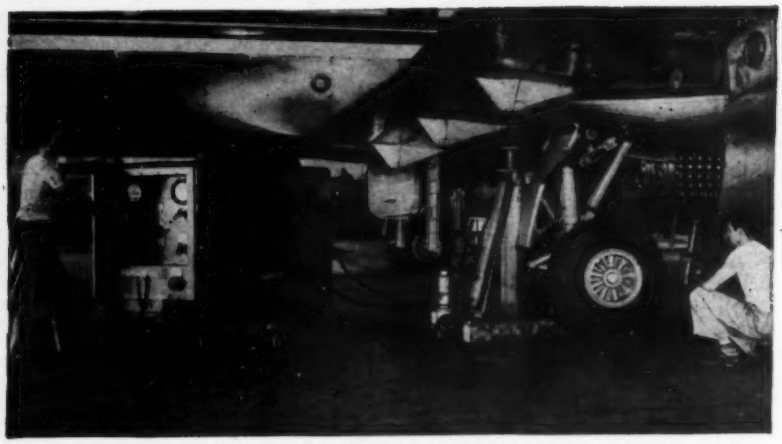

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Anchorage. The weather was not good, to put it mildly. Cold rain, low ceiling, 40-mph wind. Close to minimum. However, after take-off we climbed to 10,000 feet on top and went into Dutch Harbor in the clear.

Many of the pilots I talked with in Alaska nominated Dutch Harbor as the airfield they'd most like to stay away from. Approaching Dutch Harbor from the Bering Sea, all you can see are jagged hills sticking out of the water. There's no flat land within miles and it seems impossible that there could be a landing place near.

You fly in over a fairly wide bay between two of the hills. "See that little rock down there in the middle of the bay?" Baker said. "That's the 'outer marker.' In bad weather, you fly three minutes past that rock and if you can't see anything, you turn around and get the hell out."

He added: "Look sharp, now, or you'll miss the whole landing. We'll be on the field before you know it. It's right behind that hill."

Sure enough, a quick bank to the left and you're on the 4,300-foot gravel runway. At the left edge of the runway is a mountain; not so far away on the right is another. At each end is water, then mountains. To get out of Dutch Harbor requires a bank to the left immediately after take-off (see photo). The winds blow around both ends of the mountain on your left and meet in the middle of the runway, making the pilot's job even more interesting.

Next stop on the way back was Cold Bay, where the wind was 40 mph with gusts to 55.

The Field Gases Up

At Cold Bay, the gas tanks had been filled to the brim. At Port Heiden, last stop before Anchorage, a good portion of the gas was pumped *out* of the airplane into a gas truck. This is the only way of getting gas into Port Heiden for the S-43 that's based there.

Bob Reeve is a great believer in the tourist business. So far, he's carried about 200 to the Pribilofs, and has big plans for the future. Anchorage, he points out, has no industries to support it—it's a transportation town.

"It's surrounded by water, mountains, and government reservations," he remarks, adding that when heavy government spending stops, the airlines and Anchorage are going to need a lot more travelers, and the majority of them can be tourists.

Reeve, incidentally, may be temporarily removed from the airline picture—he's the Republican candidate for Alaskan delegate to Congress.

As far as the future is concerned, he's in favor of some logical airline mergers in Alaska to eliminate some of the present duplicating service.

But whether anyone would want to take over his Aleutian operation is open to question. "No one but Bob Reeve, with his know-how, could have operated that route safely and successfully," the president of another airline told me. "It's a tough operation, and he's a tough operator."

American Aviation Opens N. Y. Offices

An experiment in operating part of its publishing offices at a major airport, combined with a major expansion of its selling organization, is announced by American Aviation Publications, Inc. The company's national advertising sales offices have been moved from Washington to the terminal building at La Guardia Field, New York City.

La Guardia was chosen because of its direct air connections with all parts of the country and for easy accessibility to the metropolitan and suburban areas of the east by salesmen using automobiles. It is believed that if the present effort is successful, other firms may find it more efficient to have offices at or adjacent to airports.

The national sales office is headed by Stephen R. Kent, director of advertising.

Copeland

Makenzie

A. B. Copeland, formerly manager of Airframe Supply Co., Akron, Ohio, project engineer with Bendix Products Division for seven years, and eastern manager for United Aircraft Products, Inc., has been appointed regional advertising manager.

Miss Gertrude Makenzie, formerly with Young and Rubicam, Inc., and Time, Inc., serving national industrial and consumer accounts, has been named sales promotion manager.

Mailing address for the New York office is New York Airport Station 71, N. Y. Telephone: Illinois 7-4100.

Advertising in AMERICAN AVIATION magazine has shown a 30.4% gain for the first eight months of 1952 over the same period of 1951. For the six-month periods, January-June, from 1948 through 1952, AMERICAN AVIATION showed a greater percentage gain (128%) than any other aviation magazine.

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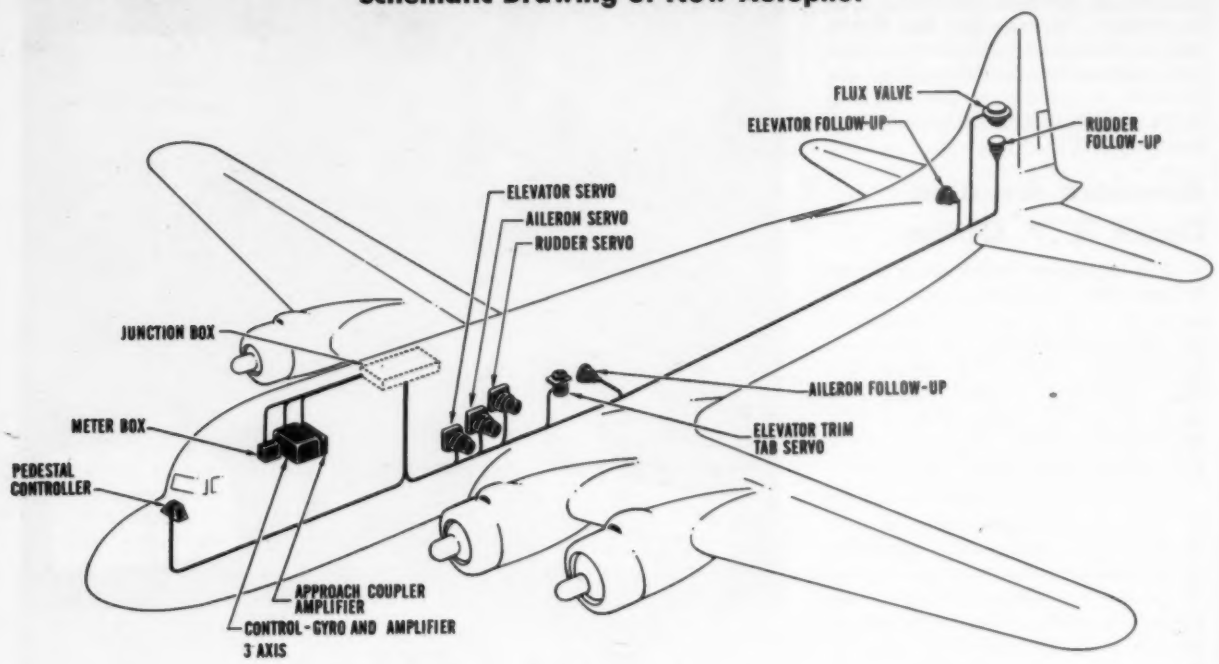

Lear Out to Crack Airline Autopilot Market

Commercial version of military F-5 unit to be tested by Slick; new cut-off offers increased protection.

By Joseph S. Murphy

A COMMERCIAL version of the military F-5 automatic pilot and approach coupler has been developed by Lear, Inc., of Grand Rapids, Michigan, and is making a strong bid for the market presented by the large transport aircraft both in the airline and the corporation aircraft fields.

Lear

Some of the more significant developments to date include:

- **Test installation** of a Lear Model L-5 autopilot in a Slick Airways Douglas DC-6A cargo transport. A General Motors-owned DC-3 has already been equipped.
- **Automatic cut-off** which protects the system from violent reaction to erroneous signals has been developed.
- **Production facilities** are available. The press of military demands, present since 1949, has been overcome.
- **Demonstrations to the airlines** have been widespread and more will come. The airlines are impressed with the unit's design and operation.

The installation of an automatic pilot and approach coupler in large transport aircraft, particularly in airline equipment, is inevitable. That is the way William F. Lear, board chairman and director of research of Lear, Inc., sees it. The hurdles to all-weather flying cannot be surmounted without this equipment, says Lear, and all-weather flying will be a necessity to the airlines in the future.

But Lear feels that the need for the equipment is just as great today; he is convinced that the airlines could not only better their approach performance under present instrument landing minimums, but could improve that record to the point where safer operations could be conducted under lower ceiling and visibility minimums.

The installation of the Lear-furnished equipment in the Slick DC-6A is of a service test nature. Through it, Lear plans to lay the groundwork for CAA certification of the system. Following the advice of airlines to which he has demonstrated it, Lear's design of this installation will make every possible use of wiring already installed

PEDESTAL controller (left); approach coupler (above).

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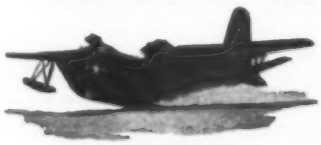

Hydro-flaps on the Martin Marlin are underwater rudders and brakes that make possible quick turns and fast maneuvering in restricted waters. The Marlin, as shown, can turn in a radius of about 1-1/2 times wingspan; which is approximately one-third the minimum radius required with engines alone.

Shown above is the Barber-Colman Micropositoner* polarized relay.

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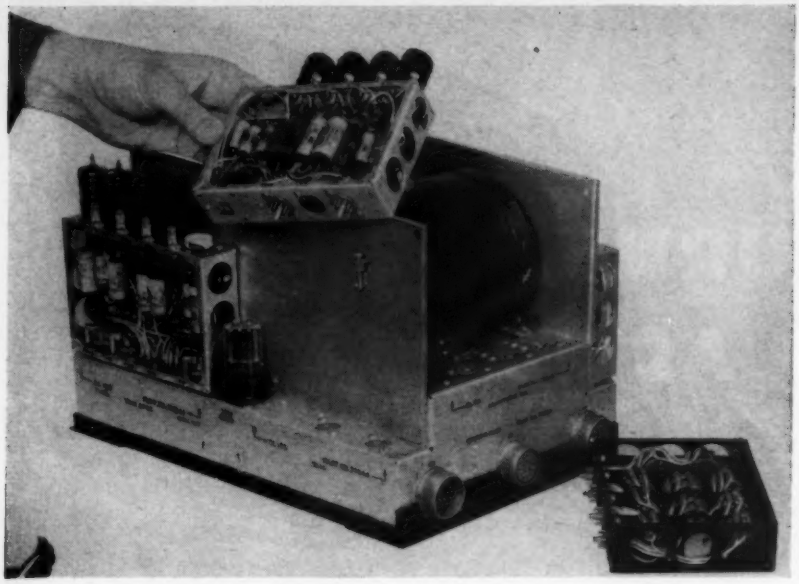


AUTOPILOT amplifier showing complete removable channel.

in the aircraft.

The automatic cut-off is new and is seen as one feature that will attract airline interest. The possibility of a hard-over signal in autopilot operation has in the past been one of great concern to the airlines, and the device protecting the plane against the violent aircraft maneuvers it can cause will be well received it is expected.

Production Methods

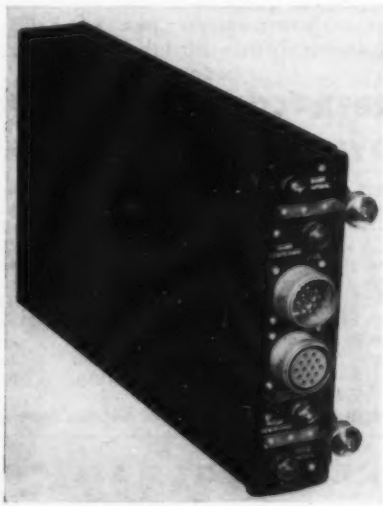
Production line methods developed over the past three years in Lear's Grand Rapids plant have enabled the company to relieve the pressure of military demands for the F-5 pilot, first cousin to the new commercial L-5 model and a feature of many of the USAF's fighter aircraft. Lear is now in a position to sell the airlines a lightweight autopilot and to produce the equipment to meet their demands.

Without a particular pattern to his demonstration schedule, to date Lear has personally exhibited the L-5 installation to American, Eastern, United, Pan American, Colonial, and Slick in the U. S. and to representatives of both KLM and Air France. Indications are that the airlines look favorably on the equipment.

Dave Little, American Airlines authority on navigational aids, who has yet to see the automatic cut-off feature, was "very much impressed by the L-5's simple engineering and construction and its satisfactory operation." Others, according to Lear, have termed it "the pilot's autopilot," explaining that its follow-up system attached directly to the control surface permits it to fly the airplane as the pilot would fly it.

Aside from the automatic cut-off feature, which is his key sales point, Lear offers many other reasons to support his belief that the airlines will buy "Learpilots." Its light weight (63½ pounds plus aircraft wiring) represents about half the poundage that an airline allows for one of its cabin hostesses.

Its simplicity of operation, construction, and maintenance are what the airlines want, Lear claims. The cockpit equipment offers centralized controls, all arranged for one-hand finger-tip manipulation. A control amplifier houses the electronic brain and nerve center for the system in one place. With the exception of the actual servo units which move the control surfaces, it provides one central maintenance and trouble-shooting point.



Approach coupler amplifier

Its design uses hermetically sealed gyros, plug-in type components and sealed parts free of the need for repeated lubrication, which protects it from the elements and simplify its upkeep. Available test equipment, both of a portable nature for maintaining equipment installed in the airplane, and of a test stand type which duplicates the operation of the system as though installed in the airplane, has been developed for use by the average mechanic.

Its reliability, founded on the experience of its first cousin, the military F-5 unit, and protected by an automatic cut-off device, is exemplified in the automatic altitude control, an integral part of the Learpilot which operates well within the 1% variation, according to Lear.

Queried as to the potential success of any automatic approach equipment because of its dependence upon accurate signals from ground ILS transmitters, Lear's answer to immediate improvement lies with the installation of ILS wave guides, developed by the CAA's Technical Development and Evaluation Center at Indianapolis. According to Lear, the wave guides can be manufactured in any sheet metal shop and would provide a big step toward assuring greater accuracy of the ground ILS equipment now in use.

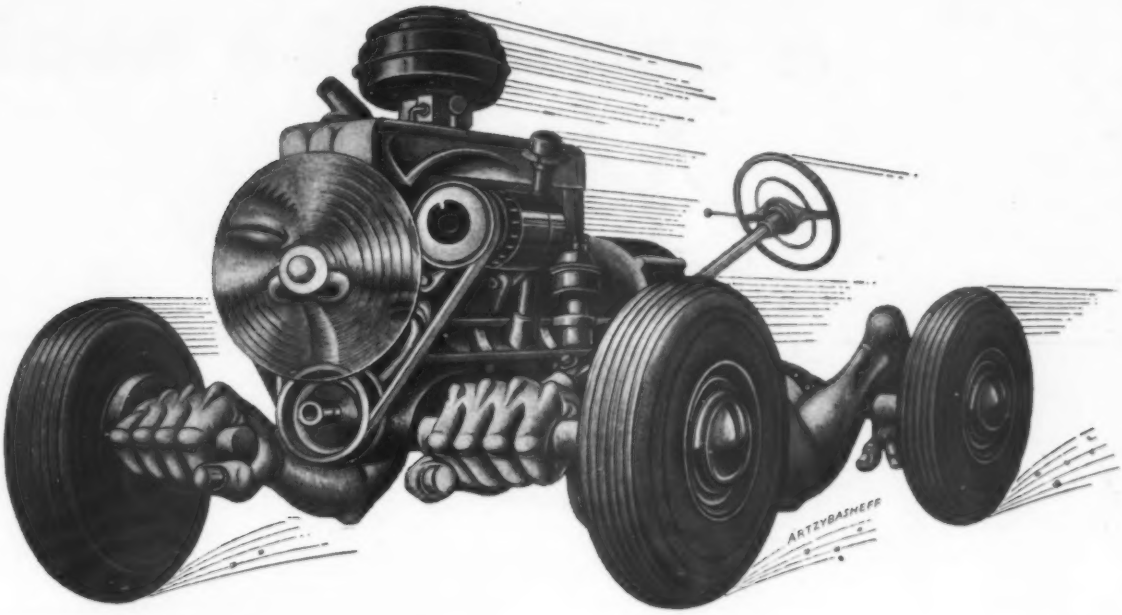
Cost a Mystery

What the new autopilot will cost the airlines is still a mystery; Lear has yet to set a price. In labor costs for its installation the best figures available indicate it will run about 300 man-hours for an aircraft of the Douglas DC-6 type.

A look into the L-5 Learpilot shows it to consist of ten major components, each of which helps to hold the airplane on a desired course. The flight controller, usually located on the pilot's console, includes all flight control functions of the automatic pilot and includes an engaging switch along with roll, trim, pitch, and turn controls.

An approach coupler controller provides switch control for the activation of the automatic altitude control in addition to that of the localizer and glide path systems of the approach coupler. An automatic release switch located on the control wheel provides means for the human pilot to deactivate the autopilot and approach coupler instantaneously.

A remote compass indicator located on the pilot's instrument panel is connected electrically to the slaved directional gyro of the autopilot system and indicates the magnetic heading of the aircraft, the course which the autopilot



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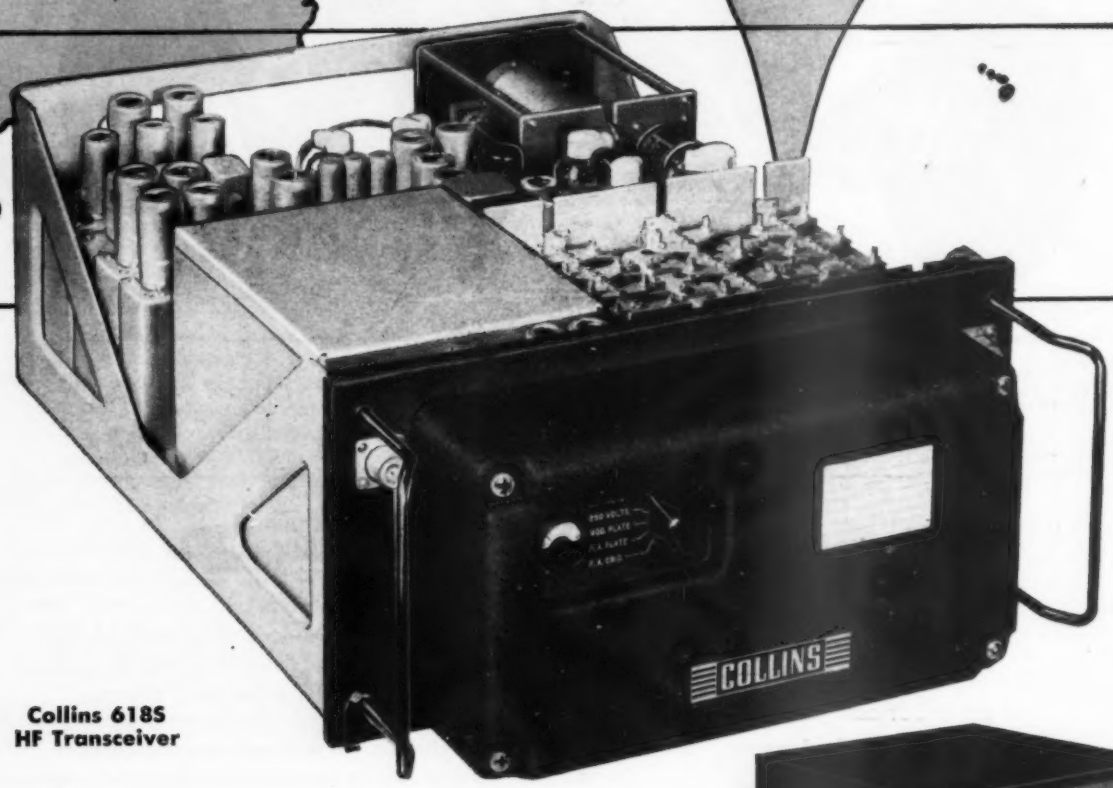

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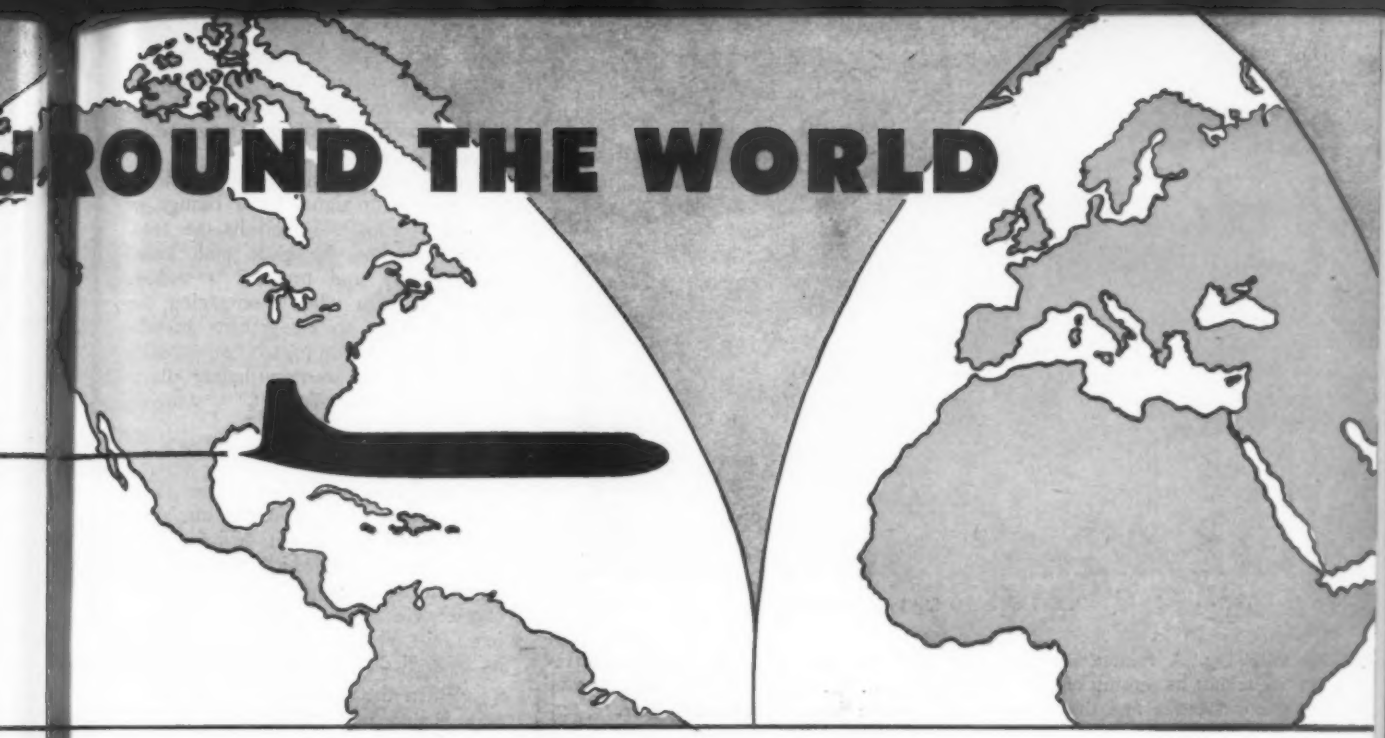

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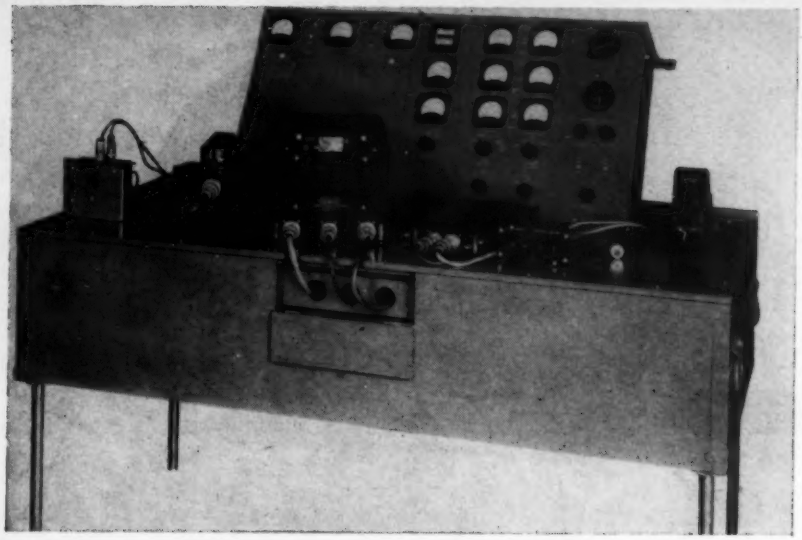

TEST STAND for Lear autopilot.

is following. A remote compass transmitter relates its sensing of the aircraft's magnetic heading to the system's directional gyro.

A three-axis amplifier control unit, the brain and nerve center of the Learpilot, houses the vertical and directional gyros, the servo amplifiers for roll, yaw, and pitch control, the a-c d-c power supplies, slaving and multiple channels, trim tab output tubes, and the power rectifier.

Here the signals from the hermetically sealed, non-tumbling gyros are received, amplified, interpreted as to direction and degree of correction needed, and related to the servo units in the form of a signal to move the controls and restore the airplane to its prescribed course.

Drum and Bracket

A servo system consisting of a drum and bracket assembly which is mounted permanently in the aircraft and a servo motor and drive assembly provide the muscle to move the aircraft controls. Acting as the link between the main control system of the airplane and the servo motor, the drum and bracket are not limited to any particular installation position in the airplane, thereby avoiding the problem of space limitations.

Actual drive to the controls by the servo motor and drive assembly is provided through magnetic friction clutches. When the clutch coil is energized by a signal from its respective servo amplifier, the field established in the air gap magnetizes a dry magnetic powder and creates a drag between the rotary clutch housing and the clutch cup. The resultant torque delivered through the clutch to the output shaft of the drive assembly and to the servo drum is in proportion to the magnitude of the signal from the amplifier.

A follow-up control, which is connected by linkage directly to the controls of the aircraft, senses the reaction of the control surface to the signal it receives from the gyro and by a feedback signal, opposed in phase to that of the original signal, provides stabilized control and prevents over-correction or the tendency of the system to hover about the controlled heading desired.

Closely allied with the follow-up control of the Learpilot is a rate circuit which electronically measures the velocity of the aircraft either toward or away from its correct flight position and provides a signal to the servo amplifier which is combined with that of the original gyro signal to actuate the servo system and return the airplane to its course. It is on this rate circuit or network that Lear bases the "anticipation" qualities of the Learpilot.

An approach coupler usually mounted adjacent to the three-axis control amplifier utilizes the output of the airplane's ILS receivers to initiate signals to the autopilot and cause it to fly the airplane on the localizer and glide path beams. With the Lear system it is not necessary to align the aircraft with the localizer beam but only to engage the system when the airplane is brought within the signal range that will cause an actuation of the ILS indicator. Thereafter the autopilot will turn the airplane into the localizer heading and stabilize it on course.

Similar to the circuits of the localizer, those of the glide path control cause the airplane to nose down into the $2\frac{1}{2}°$ glide angle when the glide path beam is intersected. To prevent the airplane from suddenly nosing up when the approach coupler is disengaged, a secondary signal is introduced by the approach coupler which slowly removes the glide path signal by a change in the pitch trim. This permits the autopilot to follow the glide path beam more closely and prevents a sudden change in trim when disengaging the coupler. This feature says Lear, permits a safe automatic approach to within a few feet of the runway before disengaging the automatic pilot.

Automatic Cut-Off

Most recent addition to the Learpilot's major components is the automatic cut-off or lock-out device, a current-sensitive relay which measures the servo clutch currents for an indication of excessive torque which would result in a rapid departure of the airplane from its controlled attitude.

When the clutch current from the amplifier exceeds maximum (12 ma) or when it persists in the normal to maximum range of nine to 12 ma for an allowed time (which can be varied by airplane types anywhere from one to three seconds) all functions of the automatic pilot are disengaged automatically through a circuit to a disconnect solenoid in the pilot's controller. Warning to the pilot that the autopilot is disengaged is provided instantaneously through a warning light and horn.

Manual Overpowering

Another desirable feature added by the automatic cut-off is that autopilot engagement is prevented when a hard-over signal malfunction exists in the system. This feature further serves to disconnect the autopilot whenever the servo is manually overpowered by the pilot, obviating the need for his locating the release button or the disengage switch.

The outcome of this new Lear venture may be an unknown now, but it is not the manufacturer's first entry into the field. If his success with its commercial predecessor, the model L-2 light plane autopilot, is any criterion, it is obvious that the venture won't die from discouragement. Told by many critics that a light plane owner would not buy a $5,000 airplane and then add automatic flight equipment costing half again as much, Lear has proven them wrong. Having started in 1950, he was last month approaching the 500 mark in sales of the L-2 model and as far as he could see, no immediate end to the market was in sight.

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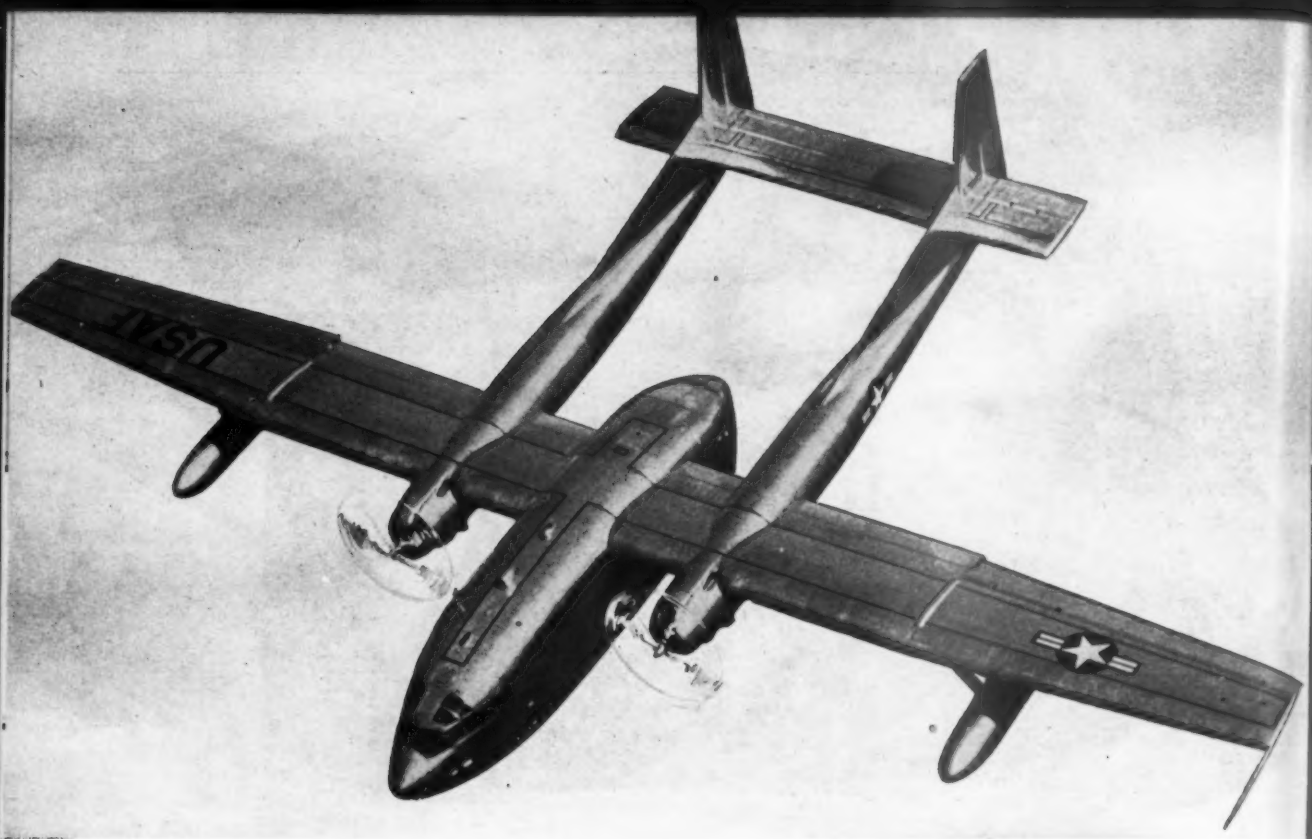

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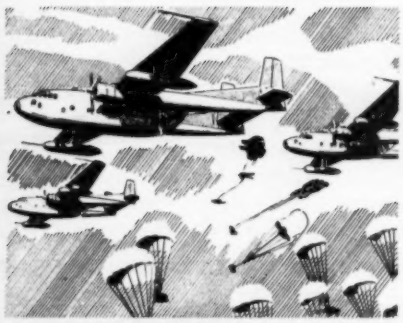

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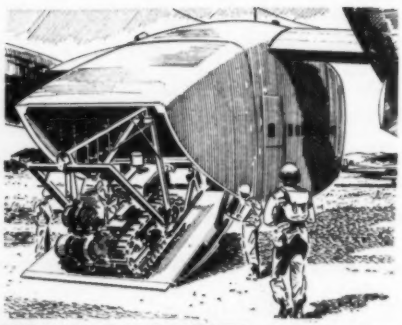

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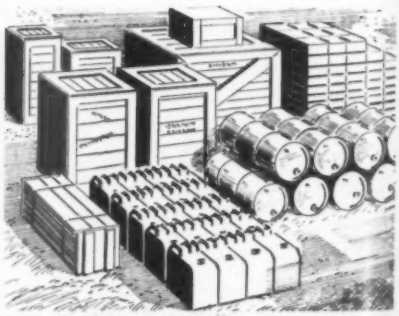

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Training Schools to Fight USAF on Policy

Battle over decision not to use civilian schools will be carried to Congress and candidates.

By James J. Haggerty, Jr.

THE National Aviation Trades Association plans to embark on a new program in an effort to contest the Air Force's decision not to make use of civilian training schools for mechanics and technicians in its expansion program, according to Charles L. Parker, executive director.

Parker

First point in the program will be an attempt to bring home to Congress the value of the training resources of the civilian schools in a mobilization program and the danger to the mobilization potential if the USAF follows through with its stated program of phasing out civilian schools.

Congressional contact will be made both by NATA's headquarters in Washington and by members throughout the country, who will contact members of important Congressional committees as constituents in their home districts.

Other points in NATA's multifold program include:

• **Preparations to introduce** new legislation on airman training in the next session of Congress.

• **Approaches to the candidates** for president and vice president in each political party in an attempt to gain post-election recognition of the value of civilian training schools.

• **A direct approach** to the Secretary of the Air Force in an attempt to reverse the decision of the AF's Directorate of Training.

• **An appeal to civilian schools** who are not members of NATA to join in the argument and present a united front.

Meanwhile, Parker leveled a blast at the Air Force's plan to phase out civilian contract work in the training field (except flying schools). Referring to recent Congressional hearings at which the Air Force attempted to justify its program of concentrating training in military schools, Parker called it "a deliberate and well-organized attempt to thoroughly discredit the matter of utilizing private trade and vocational aviation schools."

Parker took particular exception to the Air Force contention that the AF "can obtain a better product at a comparable cost" by using military, instead of civilian, training schools, stating that there appeared to be "a very considerable difference between this and the point of the Stanford Study (on contract training) which concluded that training conducted during World War II by civil institutions was equivalent to military training and at considerably less cost."

Another survey, made by the aviation mobilization survey task group of the National Security Resources Board, backed up this view, Parker said.

NATA's executive director referred to a report of the Senate Preparedness Subcommittee to take further issue with the USAF view. The report found that the cost of training at six AF bases was "truly awesome," so high that further investigation was warranted. Parker claimed that, in an actual case, technician training by the AF "with all factors concerned" ran $3.89 per hour, against $2.31 per hour at a civilian training school.

On the question of whether training at USAF establishments is better, as claimed by the USAF, Parker pointed out that civilian schools train mechanics, technicians, etc., for "the greatest civil aviation and air transport system in the world today" and apparently do it adequately. At the same time, he said, the Senate Preparedness Subcommittee stated that the Air Force's training procedures "leave something to be desired."

The Air Force had also expressed doubt that civilian schools would be able to handle the required expansion, particularly in the field of instructors. Parker said that about all of the existing mechanics' training schools and undoubtedly many technical schools in various other categories are suffering from a lack of enrollees and can handle considerable expansion with personnel available. He added that if the military is to conduct all such training it, too, might find a shortage of instructors.

Death Rate: One a Week . . .

The A & E mechanic training picture is indeed black, as witnessed by the following data compiled by Wayne Weishaar, secretary of the Aeronautical Training Society:

• **Technician schools will be closing at the rate of one a week** from now on.

• **Twenty-one** licensed technician schools have closed since the first of the year.

• **There were 126 schools** as of January 1, 1952, both private and tax-supported, which trained licensed A & E mechanics.

• **There are a total of 105** as of this date. Of this total, seven schools have no students at all and five have turned in no reports.

• **As of August 11 there were only 42** private schools left in existence for the training of A & E mechanics. This type school previously had trained 90% of all A & E mechanics.

• **There are only 63 high schools,** junior colleges, colleges, and universities offering A & E courses.

• **There are only 645 non-veterans** enrolled in the 42 private schools. In a matter of weeks, 2,282 veterans attending under the VA plan will have completed their courses.

• **The Air Transport Association** estimates that 10,500 A & E mechanics will be needed by 1954.

• **Only about five to 11 schools will be in operation in 1953,** if some program is not set up to stimulate enrollment. This prediction was made at the Technician Training Conference, held by ATS in cooperation with the Air Transport Association and the Aircraft Industries Association early this year.

• **The armed forces expect to release between 800,000 and 900,000** GI's within the next 12 months. Only a small percentage can be counted on to continue their education. Many of those who wish to do not have the money. One school alone has received 800 letters from GI's who state that they wish to become licensed A & E mechanics but do not have the funds for either maintenance or tuition.

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Announced simultaneously was a new order for Super Constellations placed by Linea Aeropostal Venezolana. LAV also made their selection after careful consideration of the finest competitive equipment. This choice is backed by their long previous experience with dependable Constellations.

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2. The Super Constellation is versatile and can be easily changed in a few hours to carry as many as 94 passengers. Thus it can be used for many purposes on many routes to meet changing competitive conditions.
3. Airlines like its low operating cost. It is practical and reliable, and it makes money.
4. It has longer range than any other commercial airplane.
5. It can match in speed the competitive schedules of any airliner.
6. Operators like it because travelers like it—for dependability, luxury and speed.

Thus the Constellation and now the Super Constellation are currently playing a vital role in profitable airline operation, at the same time giving assurance of future profit because of the built-in "growth factor" not found in any other airplane.

Extra Section

By William D. Perreault

ONCE AGAIN the Flying Saucer fable has gained new strength, with Washington, D. C., the center of operations. We thought you'd find it educational to look over the related amendment in landing fee charges recently "adopted" by the Boise City (Idaho) Airport, as outlined by air terminal manager Malcolm Parsons:

"Flying Saucer Landing Fee—$50 per landing for non-scheduled flights. (All scheduled landings and landings made previous to this resolution are to be rate free.)

"Hovering Fee—$10 for first three minutes, $10 additional for longer than three minutes. (This fee applies only to saucers under 1,000 feet over the airport.)

"Tiedown Fee—$1 per saucer under 100 feet in diameter, $1 additional for all saucers over 100 feet in diameter.

"Above rates are for non-spinning saucers. All fees are to be paid in U. S. currency."

•

Two million trips around the world sounds like more flying saucer activity at first blush, but Douglas Aircraft Company tells us that's about the right figure for the miles flown by the big three transports in the Douglas stable—the DC-3, DC-4, and DC-6 series aircraft. Specifically Douglas engineers feel these planes have logged 53,388,000,000 miles.

•

And from Urbana-Champaign, Ill., comes word that aircraft of the University of Illinois, 37 airplanes ranging from two- to five-place types, have flown the equivalent of 10 times around the earth in the last year making charter trips of various types. We mention it because it is typical of the expanding use the small corporate aircraft is seeing on all sides. The University's 37 planes provided 2,100 hours flight time to 68 different units of the University on 729 flights. The planes are provided out of a central transportation pool along with other vehicles.

•

Autopilots have come a long way since their early developmental days. United Air Lines' E. P. Lott, one-time manager of operations for National Air Transport, one of UAL's predecessor companies, and now director of flight dispatch, remembers testing an autopilot in a Douglas biplane 23 years ago. Says Lott: "It consisted of a vane on the upper wing, pointed forward into the wind, and a pendulum extending from the interior of the fuselage. The vane and pendulum were connected to a control device which actuated two motors, one to control the ailerons, the other to control the elevators. Side and forward motions of the ship caused similar movement of the vane and pendulum. This actuated the motors and controls, leveling off the plane. Electronics at that time was only a gleam in the physicist's eye."

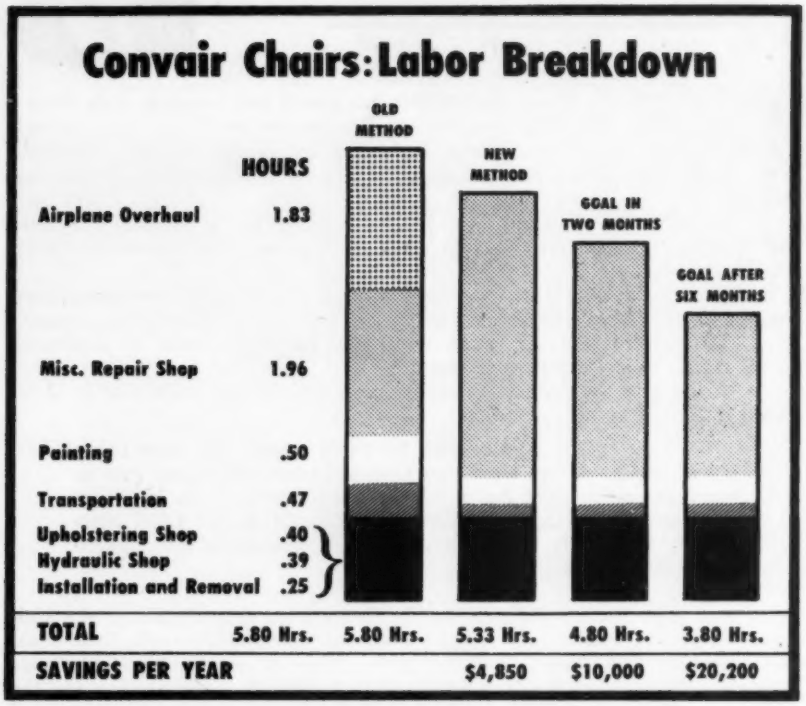
•

We've always been a little cynical about the results which might be expected by assigning aircraft flight monitoring to state and local police officers, but from Nebraska's State Aeronautics director, James Ramsey, comes word that the subject deserves more consideration. Nebraska has had only two fatal air crashes involving civil planes in the past 17 months. During the past two years the state safety patrolmen have been active in spotting buzzing and reckless flying, which, combined with the business nature of much of Nebraska's civil flying, has kept the record so impressive.

•

An incident such as that reported by CAB as a result of its investigation into the Robin Airlines C-46 crash near La Habra, Calif., on April 18, which established that the pilot having specific limitations spelled out on his pilot certificate could circumvent these restrictions by the simplest of manipulations in handling the papers, is revealing. It raises the question, "How many certified airmen, in all categories, are observing their limitations?" When was the last time someone actually checked your ticket?

Maintenance Bulletin Board



Sharper Seat Overhaul Saves $22,000

A case for methods analysis: a more serviceable product requiring less labor, an immediate saving of $5,000 that would have been spent for additional spares, an annual economy of close to $22,000. These are but a few of the results of a methods study conducted by American Airlines on its Convair 240 passenger seat overhaul procedures.

Changes in aircraft utilization, introduction of new equipment, and major aircraft modifications are all conditions that make the presence of a time and methods study group almost indispensable to the operation of a large airline overhaul base. In this instance, American's methods analysis section headed by industrial engineer Howard Feldman answered the call for "more spares" with a way to do the same job more efficiently but without "more spares."

Before the study was made, the Convair seat assemblies, which number 20 sets to the airplane, traveled some 13,000 feet in the shop either in transportation, work operations, inspection, or temporary storage from the time they were removed from the airplane until spotted in the hangar for reinstallation.

Seats which inspection showed to be excessively worn or damaged (averaging about 35%) were sent to one shop for repair, while the other 65% were disassembled and repaired at another location. This all added up to an average labor cost of 5.80 man-hours per seat for each shop visit.

Applying a $3.30 labor and overhead rate to the 3,060 Convair seats that the shop handles in a year, the total expenditure amounted to about $58,500 annually.

But the demand for more spares still existed because of the inability to repair the seats in time to meet ship schedules through the plane overhaul shop. The methods study conducted by Feldman's group not only indicated that the purchase of spares could be avoided but that considerable savings were to be realized by changing the entire shop handling of the seats. Here are some of the significant findings which led to a new procedure:

• **Transportation** alone was consuming 26 minutes of the time each seat spent in the shop and most of this handling was manual. Because of the frequent but temporary storage necessary at various intervals during the overhaul, the seats were being damaged and considerable floor area used.

• **Repair methods** varied considerably between employees in the same shop and between the two shops handling the seats. A rising rate of unscheduled removals made it evident that the rate of repair was not keeping pace with the deterioration rate due to normal wear, tear, and structural weaknesses.

• **All seats** assigned as stock spares were always in use at some point in the line of transportation, supported by considerable paperwork. The control of the work was spread among six foremen, six inspectors, six lead mechanics and about 40 shop personnel to support three Convair aircraft in the plane overhaul shop simultaneously.

Changes recommended by the methods study group brought about these new means of handling:

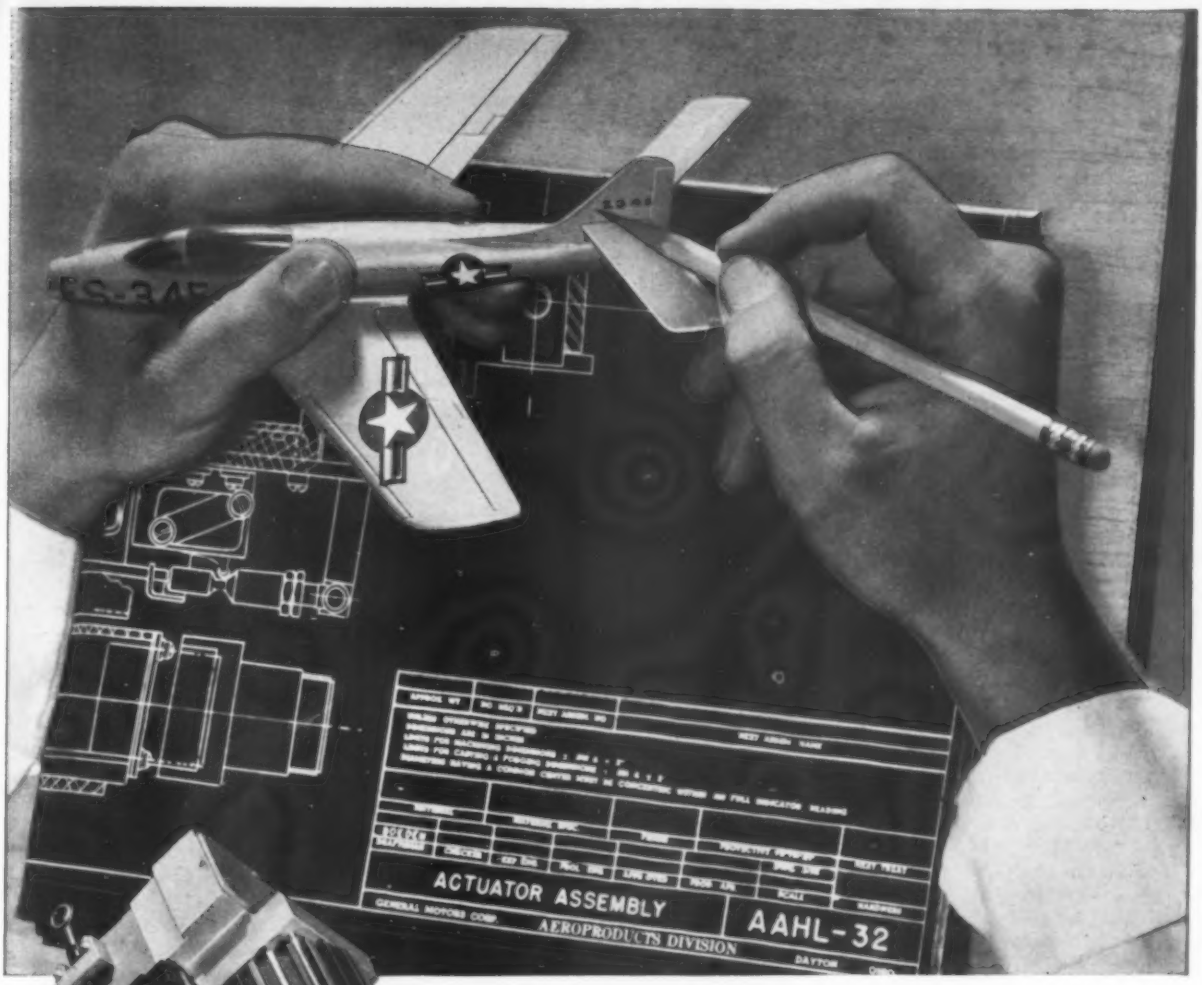
• **One shop was assigned** the repair of all seats and the repairs within that shop were standardized. Parts required for these standard repairs, once approved by the engineering section, were produced by the manufacturing section on a scheduled production basis.

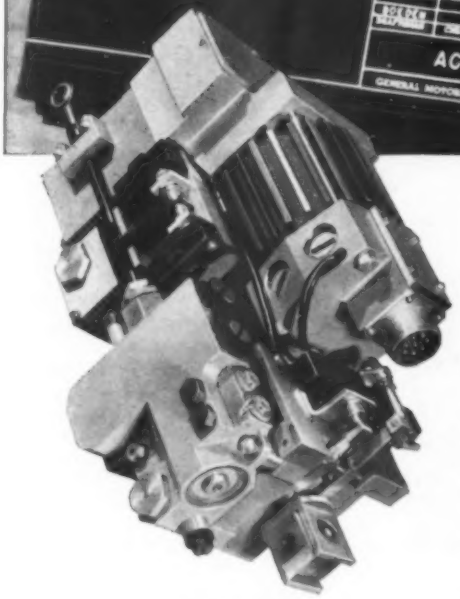
• **Carts for transportation** of the seats to the centralized shop location were designed and manufactured. The improved means of transportation reduced the shop "mileage" for each twenty sets of seats to 3,640 feet, a 72% saving. The time in transport dropped from 26 to 12 minutes, a 54% reduction.

• **Control of the work** was centered in one foreman, inspector, lead mechanic, and eight mechanics. The average labor rate of $5.60 per seat was cut to $3.73, a 37% reduction and core of the $22,000 annual saving.

A breakdown of the annual savings looks like this:

Original man-hours per seat	5.80
Man-hours using the new method	3.73
Man-hours savings per seat	2.07
Savings/seat x labor & overhead rate x seats/year = annual savings	$20,900
Avoided $5,000 expenditure x average interest rate	$100
Equipment depreciation avoided	$833
Total savings	$21,833





Self-Locking Hydraulic Actuator

"Designed to fit the job," describes Aeroproducts' new hydraulic self-locking actuators. They lock in *any* position without pre-selection or positioning—they stay in that position until changed. Aeroproducts actuators may be coupled for absolute simultaneous action. They feature manual, electrical, or pneumatic operation in case of hydraulic system failure. Designs have been approved and are being used for *variable control surface applications* and are being readied for jet engine variable nozzles, guided missiles, and others including commercial use.

Definite applications of this unit now being readied for production are for:
Republic F84F Flyable Tail • McDonnell F3H-1 Horizontal Stabilizer
Others unannounced.

APPLICATIONS

- Stabilizer Control
- Jet Engine Variable Nozzle Control
- Dive Brakes
- Variable Wing Incidence
- Flap Actuation
- Aileron Control
- Variable Wing Sweep
- Bomb Bay Door
- Cargo Door
- Landing Gear
- Turret Control
- Canopy and Seat Control

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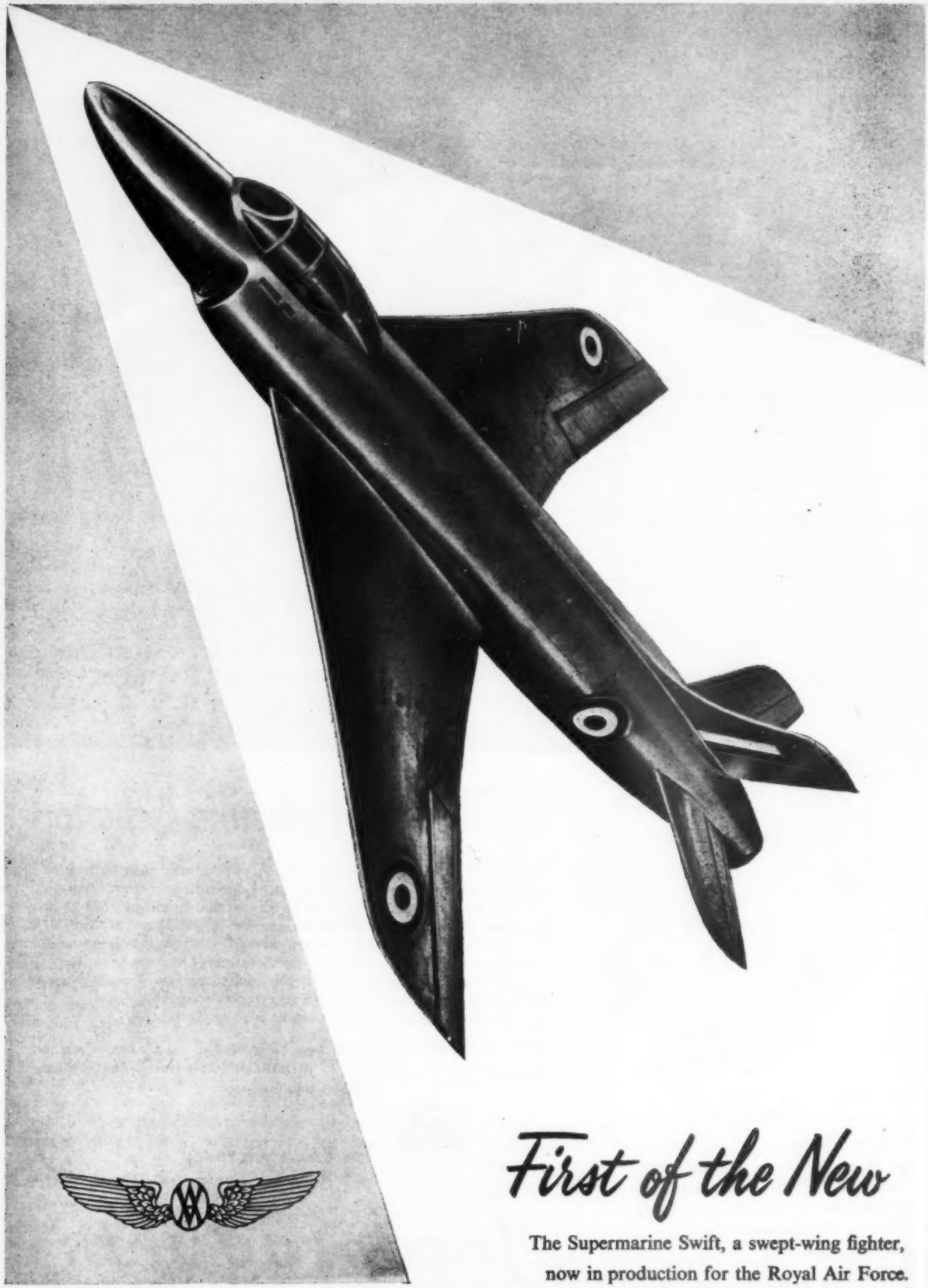
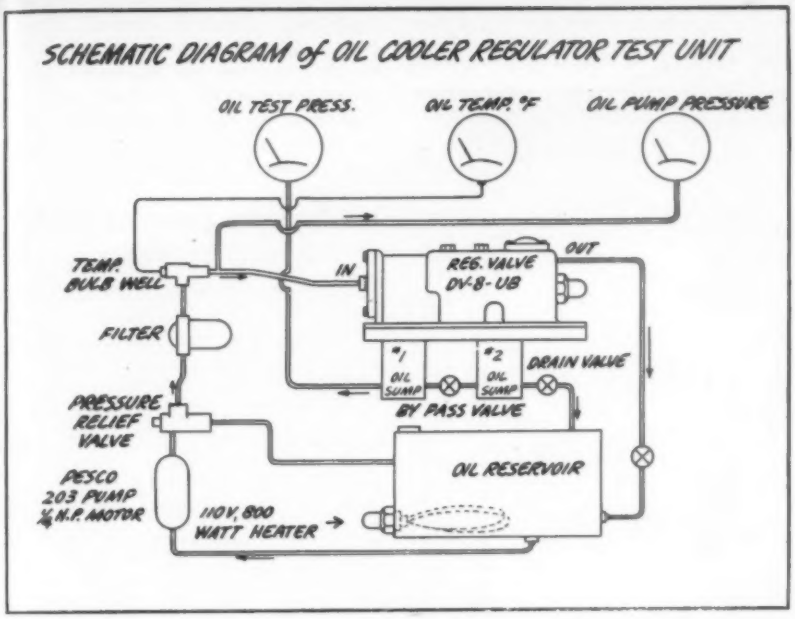


First of the New

The Supermarine Swift, a swept-wing fighter, now in production for the Royal Air Force.

VICKERS-ARMSTRONGS LIMITED • SUPERMARINE WORKS • ENGLAND



New Test Unit for Oil Cooler Valves

An 80% reduction in the time required to test oil cooler regulator valves is reported in another development in Frontier Airlines' accessory overhaul shop. An oil cooler regulator test unit designed and built by Bob Meisenbach, a lead man with Frontier, does the job in 25 minutes, as compared with over two hours, the time needed with the open oil bath formerly used.

In the two months that the new test unit has been in use, Frontier has located fifteen defective valves which had passed inspection and test under the old method.

Frontier's procedure in testing valves with the new stand involves both oil pressure and temperature checks:

1. The test unit is run cold at 25 psi oil pressure. A test pressure of zero indicates that the cooler inlet valve is closed and not leaking.

2. The oil is then heated. (A 110-volt, 800-watt heater in the base of the test unit reservoir heats the oil to proper temperature.) As the oil heats, the test pressure rises when the cooler inlet valve opens. Proper temperature is "green-lined" on oil temperature gauge.

3. When temperature rise opens inlet valve fully and seats disc valve, the test pressure rises about five psi above the oil pump pressure. Oil temperature at this point is checked against manufacturer's specifications.

4. As oil temperature continues to rise, the oil pressure drops and test pressure rises an equal amount when the DV-8 regulator valve is closing. A leaking valve will fail to cause the proper drop in pressure. When oil pressure stops falling, the DV-8 valve is fully closed and the temperature reading then taken represents that temperature at which engine oil will operate when installed in the airplane.

OIL COOLER regulator test stand.

5. Failure of the oil pressure gauge reading to fall to zero psi usually indicates a leaking disc valve. By removing the check valve cover it can be determined whether such an indication is caused by a bad DV-8 valve or a leaking disc valve.

The accompanying schematic diagram of the test unit shows the components and their working arrangement.

Up To 10 Recaps At Chicago & Southern

Up to 10 recaps on Lockheed Constellation nose and main landing gear tires with no particular limit in sight: that is the record at Chicago & Southern Air Lines, according to its vice president-operations, Bill Arthur.

Back in 1948 C&S was successfully using the three-recap method, according to Arthur. Since then the success and economy of the program has advanced to the point where 10 recaps are permitted on C&S Constellation 1700 x 20 main gear tires and 34 x 9.9 nose gear tires.

The method by which they are attained is even more significant. C&S uses the Hawkinson process, better described as "crown capping," as opposed to the conventional bead-to-bead recap method most commonly used. Working with the Shelby Tire & Rubber Company of Memphis which handles C&S recapping requirements on a three-day return basis, the airline produced some interesting tire figures for 1951.

In this period C&S used 152 tire treads of the 1700 x 20 main wheel size, and of these 134 were recap treads and 18 new. The cost of the 134 recaps totalled $7,746 and that of the new tires $3,819, a grand total of $11,565.

During 1951 Chicago and Southern's Constellations made 12,620 landings. With an average tread life of 322 landings, main wheel tires cost C&S 91 cents per aircraft landing, or 23 cents per tire landing. The maximum number of tire recaps attained during the period was eight.

Experience with the 34 x 9.9 nose wheel tires indicates similar costs. Of 124 treads used during the year, 105 were recaps costing $3,878 and 19 were new tires priced at $1,327 for a total expenditure of $5,205. Using the same landing data and an average tread life of 204 landings, nose wheel tires cost 41 cents per airplane landing or 20½ cents per tire landing.

Economy is only one measure of the success of such a procedure. Others are its effect on safety and its performance in operation. C&S reports that it has yet to lose a tire tread since the multiple recap plan started. During 1951 only 10 delays totaling slightly over 10 hours were experienced with main gear tires and none with nose wheel installations.

Questioned on the average number of recaps a tire offers, C&S advised that present experience indicates it to be five. Beyond the fifth handling of the tire there is a general drop-off to the point where about 5% of all new tires reach the tenth recap, the present maximum.

Ready for Hanging

One of a series of selected portraits of some very select members of the airline family, as seen by the eye of Richard E. Chamberlain.

THE PILOT Keen minded—military bearing—clean cut—calm—poised—not given to profanity even under pressure ("Holy Kaboly!")—radiating confidence. Plans his flight carefully, devoting a full hour to the study of en route weather

Flight Engineers' Wage Boosts Recommended

A 10% wage boost for Trans World Airlines flight engineers and a hike of $50 a month for similar employes on Northwest Airlines have been recommended by a presidential emergency board. The Flight Engineers International Association-Ind., which had sought monthly salaries ranging from $620 to $820 for its TWA members, ended up with increases of $45 to $70 a month, making the board's recommendation range from $465 to $770.

In the case of IAM-AFL flight engineers on NWA, the union had sought hikes ranging from $136 to $161 a month but the panel recommended only about one third as much. NWA flight engineers assigned to international flights were recommended for a jump from $475 to $525 for the first six months to an increase from $650 to $725 at the top level.

New Crew Time Limit Proposed Again by CAB

The Civil Aeronautics Board has again proposed extension of crew flight time limitations from eight to 12 hours in CAR draft release 52-25 which requests industry comment not later than September 22.

The reason given by the Board for the revived proposal is the introduction of new equipment which may be employed by certain air carriers in nonstop transcontinental operations.

An earlier proposal for the 12-hour limit was discarded because such a major departure from limitations "long in use" was not felt warranted. In its recent proposal the CAB also asks for comments on the advisability of some limitation in between the present eight- and proposed 12-hour limits.

CAB Asks Loan of USAF C-46 for Testing

A Curtiss C-46 airplane which will comply with the performance rules of transport category civil air regulations is the goal behind a recent request of the Civil Aeronautics Board to the Air Force for the loan of a C-46.

Working with the CAB, the CAA, and the engine manufacturer on the first phase of a program to eliminate "deficiencies" in the airplane, the C-46 Foundation, a non-scheduled airline engineering group, has contracted with American Airmotive, Inc., of Miami, Florida, to conduct the tests when an airplane becomes available.

The first phase involves flight testing of a redesigned power package for improved oil and cylinder head cooling and fire protection, the principal features of which are a stainless steel air seal diaphragm, relocated cowl flaps, a new oil cooler, and improved fire protection. The same engines, Pratt & Whitney R-2800 "B" series are being used.

Voltage Protection Directive Issued

Over-voltage protection in the generator system of Douglas DC-6, DC-6A, and DC-6B aircraft is the subject of CAA Airworthiness directive 52-20-1 and February 1, 1954, is the deadline set for completing the rework.

The long debated issue affects both the Eclipse and General Electric generator systems used in DC-6's and its intent is to reduce the likelihood of electrical fires as well as the loss of electrical and electronic equipment needed to continue flight.

In the Eclipse system the existing over-voltage relays are retained and the four generator contactors are replaced with high voltage units rated at 120 volts. The G-E rework involves installation of over-voltage sensing relays and either the rework of the reverse current circuit breakers to trip out simultaneously with the generator control relays, or the installation of 120-volt generator control relays.

The relatively far-off deadline set by CAA is intended to permit operators to procure materials and accomplish the change in conjunction with periodic maintenance schedules involving the generator system.

From the design boards to finished product Canadair has the experienced know-how: designers of the highest caliber backed by the finest production facilities — a combination able to meet any demand in the manufacture of aircraft.

Airliners . . . transports . . . jet aircraft . . . such is the background of the men responsible for design at Canadair . . . men with years of priceless experience in designing aircraft.

Canadair is proud of its design team -- a team that is an integral part of the Company's complete aircraft manufacturing facilities.

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WITH the pressure on all public utilities, company-owned Beechcrafts are daily serving executives in these fields — by making their time count for more. Beechcrafts reduce trip hours as much as 75%. Key men get more done. Power shutdowns are cut to the time it takes to fly replacement parts to trouble spots.

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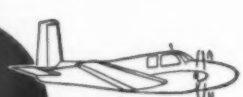


BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

New Berths for TWA

The passenger berths for Trans World Airlines' new Lockheed Super Constellations weigh only 115 pounds each, complete with all of the necessary make-up equipment, such as mattresses, blankets, pillows, etc. Manufactured by the Transport Equipment Company of Burbank, Calif., the new berths are said to be a complete departure from previous berth design techniques, resulting in approximately a 33% weight saving.

Daily Plane Utilization

DOMESTIC

		May	June
American ...	2 eng. pass.	5:27	6:08
	4 eng. pass.	9:32	9:40
	cargo	3:43	3:59
Braniff	2 eng. pass.	6:42	7:33
	4 eng. pass.	7:51	8:07
	cargo	1:15	6:34
Capital	2 eng. pass.	6:00	7:28
	4 eng. pass.	7:11	8:31
Caribair	2 eng. pass.	3:41	3:56
C & S	2 eng. pass.	8:42	9:31
	4 eng. pass.	8:51	9:29
Colonial	2 eng. pass.	6:38	7:17
	4 eng. pass.	7:33	8:32
Continental ..	2 eng. pass.	7:10	7:11
	4 eng. pass.	5:46	5:31
Delta	2 eng. pass.	8:45	8:51
	4 eng. pass.	8:29	8:37
	cargo	6:32	6:17
Eastern	2 eng. pass.	6:37	6:21
	4 eng. pass.	7:52	8:24
	cargo	:04	...
Hawaiian ...	2 eng. pass.	4:44	5:57
	cargo	2:54	3:12
MCA*	2 eng. pass.	5:34	6:06
	4 eng. pass.	2:31	2:20
National	2 eng. pass.	7:12	7:16
	4 eng. pass.	10:31	9:48
	cargo	5:55	5:45
Northeast	2 eng. pass.	5:29	6:55
	4 eng. pass.	...	6:32
Northwest ...	2 eng. pass.	7:13	8:04
	4 eng. pass.	8:33	9:28
Trans Pac. ..	2 eng. pass.	5:52	7:17
TWA	2 eng. pass.	4:43	4:53
	4 eng. pass.	7:53	7:55
	cargo	:41	4:09
United	2 eng. pass.	4:37	6:12
	4 eng. pass.	8:13	9:10
	cargo	1:31	4:40
Western	2 eng. pass.	7:36	7:34
	4 eng. pass.	8:31	8:47

** MCA's figures do not include operations of local service segment (route 106) awarded company by CAB in the Parks Air Lines Investigation Case.*

NOTE: Schedules were curtailed during May because of nationwide gasoline shortage.

New Cargo Facilities for AA at Buffalo

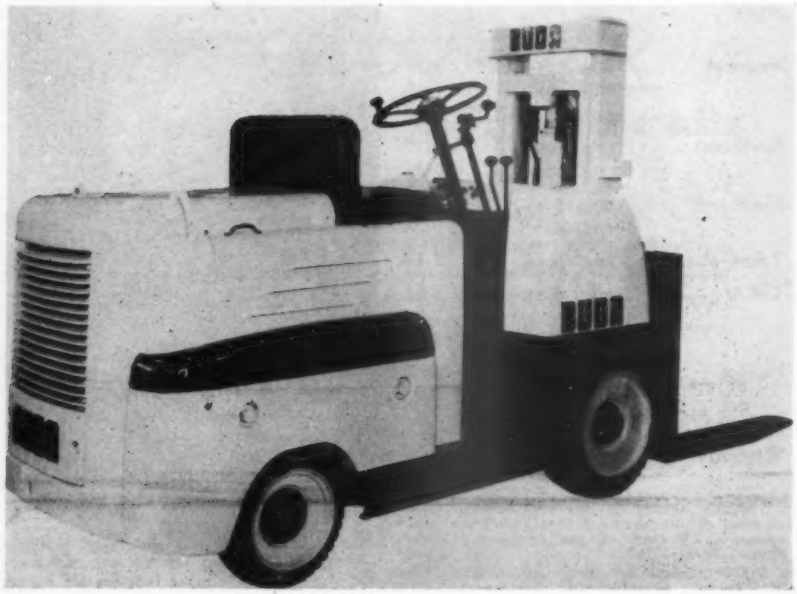
NEW AIR FREIGHT TERMINAL for American Airlines at Buffalo was a firehouse.

TWO BELT CONVEYORS will be featured in the finished building, together with fork lift trucks. View above is from the truck dock.

LOADING SPACE, 66 feet long, can accommodate five trucks. Interior includes 4,600 square feet of warehouse floor space, 936 square feet of office space, 180 square feet for air express.

Portable hydraulic test stand for use with Hollingshead H-2 non-inflammable hydraulic fluid is announced by Greer Hydraulics, Inc. Providing pressures up to 5,000 psi for checking hydraulic system component operation, landing gear operation, pressure checks, etc., units are available with either electric motor or gasoline engine power. Models are PE3C-10VH and PG3C-10VH respectively. Address: Greer Hydraulics, Inc., 454 18 St., Brooklyn, New York.

Air manifold for ceiling suspension, designed for use in plants employing a variety of pressurized hand tools, is marketed by Lynco, Inc. Of light-weight construction, the four-way manifold weighs only one pound, is easily handled, and is available with either Foster quick-disconnect fittings or the straight screw-in type. Unit includes moisture trap and drain. Inlet fitting is ¾" thread and four outlets ½" thread. Address: Lynco, Inc., Los Angeles, Calif.



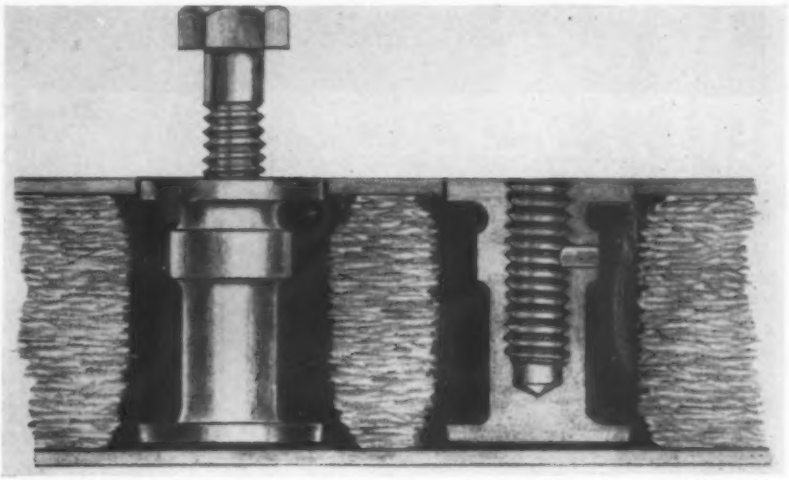
Fork lift truck introduced by the Buda Company is the first of 6,000-pound capacity manufactured by Buda. Model FT-60-24 is gasoline powered and FTD-60-24 is diesel powered. A 73½ hp, six-cylinder or 53½ hp, four-cylinder gasoline engine is optional. Address: The Buda Company, Harvey, Illinois.

New Products

Calculator

A horsepower calculator designed by Barber-Colman Company for use with aircraft rotary and linear electro-mechanical actuators can be obtained by writing to Barber-Colman on your company letterhead. Using the Nomogram, as the calculator is named, the unknown factor can be easily determined if two of the three factors are known, i. e., speed torque (or thrust) and output horsepower.

Address: **Barber-Colman Company**, Rockford, Ill.



Self-Locking Insert

A self-locking insert designed for securing sandwich-type aircraft structural panels has been introduced by Sta-Fast, Inc.

Intended to overcome the ease with which this type structure is damaged, the new fastener features simplicity of application. A nylon plug molded into the bossed section of the insert provides the self-locking feature.

To apply the insert a hole is bored into the structure from one face, but not penetrating the other. The insert is then molded into the panel and against the opposite wall using Epon VI, a Shell Chemical Company metal bonding compound.

Pull-out tests reportedly indicate that the sandwich type structure panels will collapse before the insert fails.

Address: **Sta-Fast, Inc.**, 2632 Ontario St., Burbank, Calif.

Insulating Resins

Insulating resins designated Scotchcast No. 1 and No. 2 for complete enclosure of electrical components operating under adverse conditions have been announced by the Minnesota Mining and Manufacturing Company.

Offering moisture resistance, high dielectric strength, and tough protective coating, the new materials can also be used for dip-impregnation of coils in lieu of the conventional varnish-impregnated paper and cloth insulation.

Scotchcast No. 1 is provided in solid form with a catalyst. In application it is heated until liquified for pouring into a mold. It sets and is cured at 250° F. for four to eight hours. The No. 2 resin comes in liquid form with a hardener, can be poured into a mold and cured at room temperature in three to six hours.

Current usages include embedding of resistors, unitized electronic circuits, pre-amps, torroids, and both audio and power transformers.

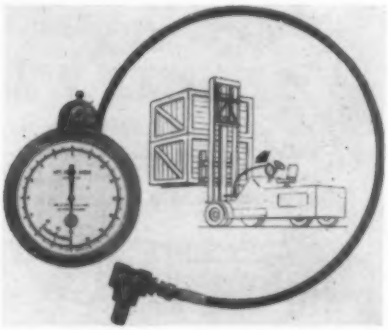
Address: **Minnesota Mining and Manufacturing Co.**, 900 Fauquier Street, St. Paul, Minn.

Industrial Timer

An industrial timer called the Durachron, for laboratory and industrial applications, has been placed on the market by Andrew Technical Service. Spring-wound for portability, the new stop-clock provides a four-inch diameter dial for distant reading.

Of rugged construction, said to be superior to conventional stopwatches, the Durachron offers three methods of operation. These include time-out operation when observations are interrupted, straight timing for uninterrupted observations, and snap-back timing wherein elapsed time is read while the sweep hand is in motion and the hand is returned to zero simultaneously to start another reading.

Address: **Andrew Technical Service**, 3805 N. Clark Street, Chicago 13, Ill.



Load Scale

A load scale designed for use with any hydraulic-cylinder-type fork trucks has been placed on the market by the Martin-Decker Corporation. Nine models are available with dials ranging from 2,000 to 18,000 pounds. The scales provide a visual indication of fork loads, thereby assuring full, safe loading.

Units are ruggedly constructed and are actuated directly by the hydraulic pressure used for fork operation.

Address: **Martin-Decker Corp.**, Long Beach 7, Calif.

What every pilot should know about MICRONS

(Psst! What you don't know can hurt you!)

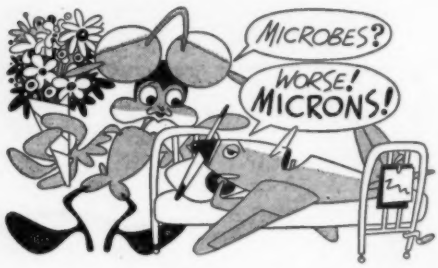
"And what," you ask, "is a *micron*?"

Answer: "Micron" has *two* definitions, and you'll want to know them both—the first to impress your friends, the second to keep out of trouble. Here they are:

1—A micron is a *measurement of length*. Just remember that 25,400 microns equal one inch . . . and then take it from there. From now on, in your hangar-flying sessions, don't just say "mile" when you can say "1,609,344,000 microns." The boys will be amazed.

2—A micron, chemically speaking, is a particle having a diameter of .000039 inch. Engine manufacturers warn that particles larger than 10 microns in diameter can be injurious to your engine. Four particles of this 10-micron size would have to get together before you could even see them with your naked eye, even if your latest CAA physical shows that you have 20-20 vision.

But when these invisible particles get into your engine —watch out! They can cause damage or undue wear. They could even cause engine failure and a forced landing.



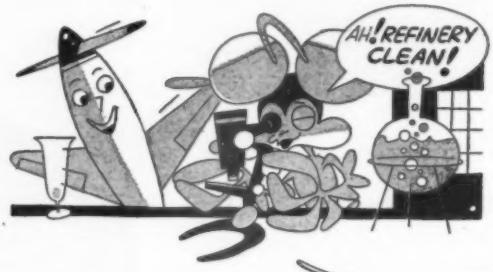
How do they get in?

They get into your engine with the gasoline—regardless of the brand you use. No matter how carefully it's transported from refinery to airport, gasoline can't help picking up airborne dust particles, including sand and rust.

How to trap the little rascals

How can you trap these particles—keep them out of your engine? Not with fine mesh screens. And certainly not with ordinary filters. The *only* solution is to force the gasoline through specially designed filters—just ahead of the gasoline hose—before it goes into your tank.

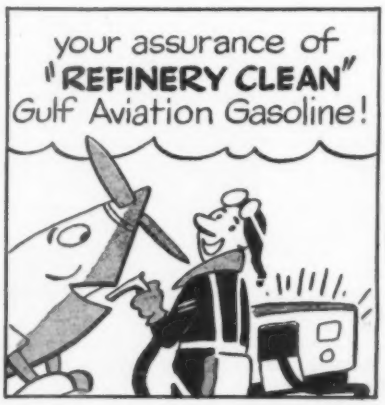
So that's exactly what Gulf is doing for you. Gulf has installed filters on its Aviation Gasoline dispensing equipment, designed to completely remove all particles 10 microns in size or larger. From now on, for the sake of your engine and your own safety, go GULF . . . get gasoline that's *refinery clean*.



Gulf Oil Corporation . . .

Gulf Refining Company

GULF
AVIATION PRODUCTS



Inspection Trays

An inspection tray series of all-plastic construction has been introduced by Durable Formed Products, Inc. The set consists of one pick-up tray formed from 0.093" Boltaron plastic sheeting measuring 11" x 9¾" x 1¼" deep, and three insert trays of 0.062" sheeting which measure 4½" x 4¼" x 1" deep.

Provided in a variety of standard colors, the trays are intended for use in quality control work where precision parts such as rivets, machine screws, etc., are spot-checked and rejects are separated into one of the insert trays.

According to the manufacturer, Boltaron plastic was selected because of its light weight and resistance to oils, alkalies, and solvents.

Address: **Durable Formed Products, Inc.**, 329 Canal Street, New York, N. Y.

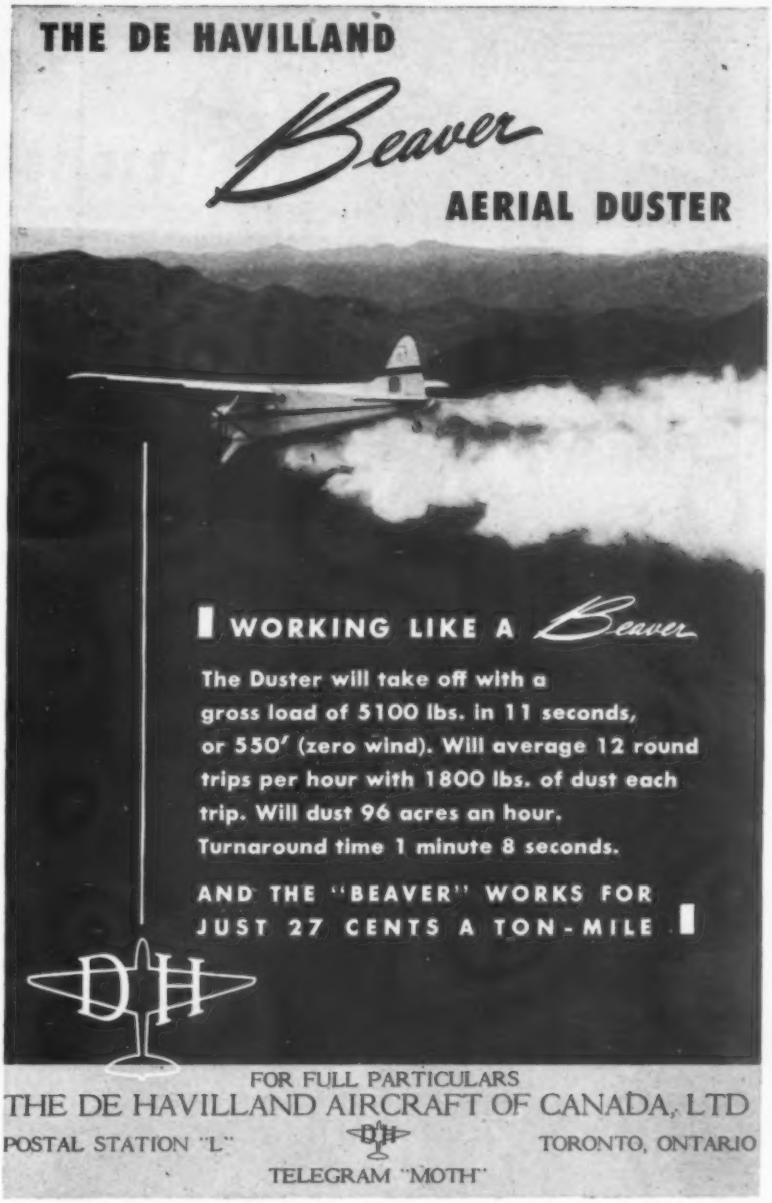
Cowling Latch

A cowling latch, designated a heavy-duty, hook-cowl, flush latch is specifically designed for power packs and engine nacelles, according to the manufacturer, the Hartwell Aviation Supply Company. Available in either straight, concave, or convex types, the new latches are rated for a maximum ultimate load of approximately 10,000 pounds static tension.

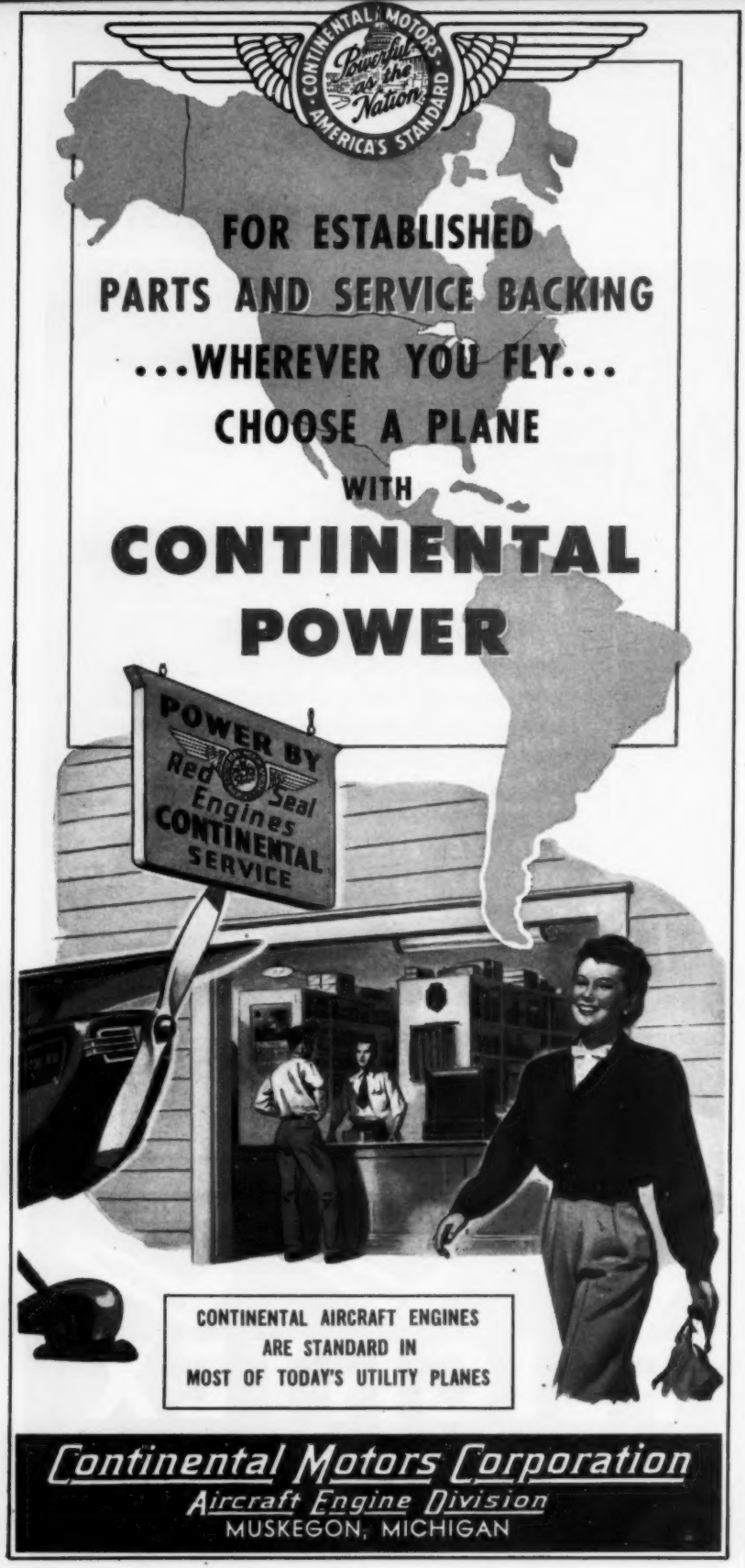
The all-steel version of the latch weighs 14.2 ounces, and has a stainless steel handle and trigger with a chrome-plated chrome molybdenum steel hook assembly. The aluminum-steel latch weighs nine ounces and includes an aluminum alloy handle and trigger with the same steel hook.

The latches feature positive action, simplicity of installation, and ease of operation. The toggle mechanism locks in place and the applied load acts to hold the latch closed. A tee-bolt and trigger provide the opening action.

Address: **Hartwell Aviation Supply Company**, 9035 Venice Boulevard, Los Angeles 34, Calif.


THE DE HAVILLAND
Beaver
AERIAL DUSTER
WORKING LIKE A Beaver
The Duster will take off with a gross load of 5100 lbs. in 11 seconds, or 550′ (zero wind). Will average 12 round trips per hour with 1800 lbs. of dust each trip. Will dust 96 acres an hour. Turnaround time 1 minute 8 seconds.
AND THE "BEAVER" WORKS FOR JUST 27 CENTS A TON-MILE
DH
FOR FULL PARTICULARS
THE DE HAVILLAND AIRCRAFT OF CANADA, LTD
POSTAL STATION "L"
TORONTO, ONTARIO
TELEGRAM "MOTH"

WORLD'S PREMIER AIRPLANE FABRIC
lighter
stronger
smoother
FLIGHTEX
FLIGHTEX FABRICS, Inc. · 93 WORTH STREET · NEW YORK 13, N.Y.
Leading Manufacturers of Fabric and Tapes for the Aircraft industry.
FLIGHTEX FABRIC
Export Representative AVIQUIPO, Inc. 25 Beaver Street, N. Y. Cable: Aviquipo



Technical Literature

METAL FORMING MACHINES: Cincinnati Milling Machine Co., Cincinnati 9, O., introduces its new line of metal forming machines, known as Hydroform, in publication No. M-1759. The new line eliminates the necessity for using matching die sets. The machines operate on the principle of a solid punch member moving into a hydraulically pressurized die member.

•

LABORATORY EQUIPMENT: Four bulletins dealing with laboratory equipment have been issued by Andrew Technical Service, 3805 North Clark St., Chicago, Ill. Included are Bulletin 570 on flowmeters, evaporators, electric and air power stirrers; Bulletin 572 on a new principle of air weight control; Bulletin 574 covering specs and data on two models of vacuum pumps; and Bulletin 576 dealing with corrosion-resistant circulating pumps with body blocks and interchangeable liners.

•

SELENIUM RECTIFIER STACKS: Designated GET-2350, a 28-page two-color brochure presents the basic characteristics of selenium rectifier stacks developed by the Lighting and Rectifier Dept., General Electric Co., Schenectady 5, N. Y. Charts, graphs, and tables help complete the story and present the applications.

•

GASES AND VAPORS: "Limits of Flammability of Gases and Vapors," prepared by the Bureau of Mines, is useful to research organizations and industrial concerns using flammable gases or volatile liquids in planning ventilation in plants or labs. Bulletin 503 is available from the Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C., at 40c per copy.

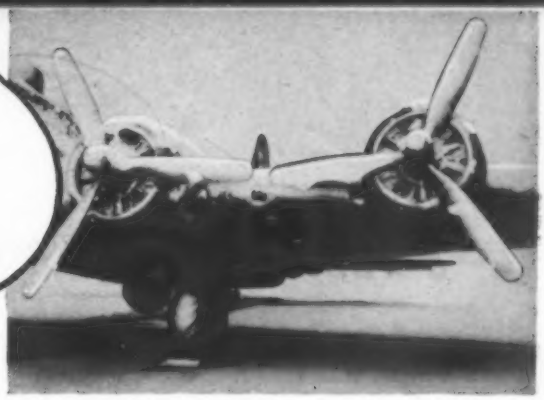
•

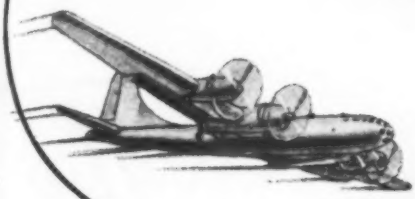
WATER REPELLENT: "Flexseal," new silicone-base water repellent is described by the Building Maintenance Division, Flexrock Co., 36th and Filbert Sts., Philadelphia 4, Penna., in a four-page bulletin. The publication claims that Flexseal actually penetrates the masonry up to ¼ in., lining each minute particle of the masonry structure with silicone resins, but not plugging the pores. It can be applied in temperatures as low as 15° F. as long as the surface is dry. Technical data and instructions for applications are included in this two-color pamphlet, in addition to the basic details.

•

PERMANENT MAGNET TOOLS: Four letter-size pages make up catalog piece M-30, used to describe specifications and prices of 16 standard, hand-operated, permanent-magnet tools. Included are several new and several previously announced products. Available from Magnetool Div., Multifinish Mfg. Co., Dept. 309, 2114 Monroe, Detroit 7, Mich.

Grounded Planes mean Lost Dollars!





To get planes flying sooner—

CLEAR YOUR RUNWAYS *Faster!*

250 h.p. Super Walter Snow Fighter, with giant V-Plow and two hydraulically controlled 14 ft. side wings. Total clearing width 28 ft., at 20-30 mph.

This year, cut your winter losses due to snow and ice. Save many hours—even days—by using big, fast, powerful Walter Snow Fighters to keep runways safe and usable throughout any storm. Get back on schedule as soon as visibility clears. Have aprons, strips and approach roads cleared also, in very few hours.

Remember, you can do this only with Walter Snow Fighters—specially designed in every detail for speedy, high capacity snow and ice control. Here are some of the exclusive features:

Most important is 100% traction in four driving wheels, provided by Walter 4-Point Positive Drive. Greater distance, speed and pushing power are obtained, because wheels do not spin or slip. Snow is thrown far to the side, minimizing snowbanks and re-handling. One mile of runway is cleared for safe traffic in 20 minutes, in an average snowstorm. Icy runways can be sanded effectively in 20 to 30 minutes. Get the complete story of Walter Snow Fighters before winter sets in. Have a representative call—or write for literature.

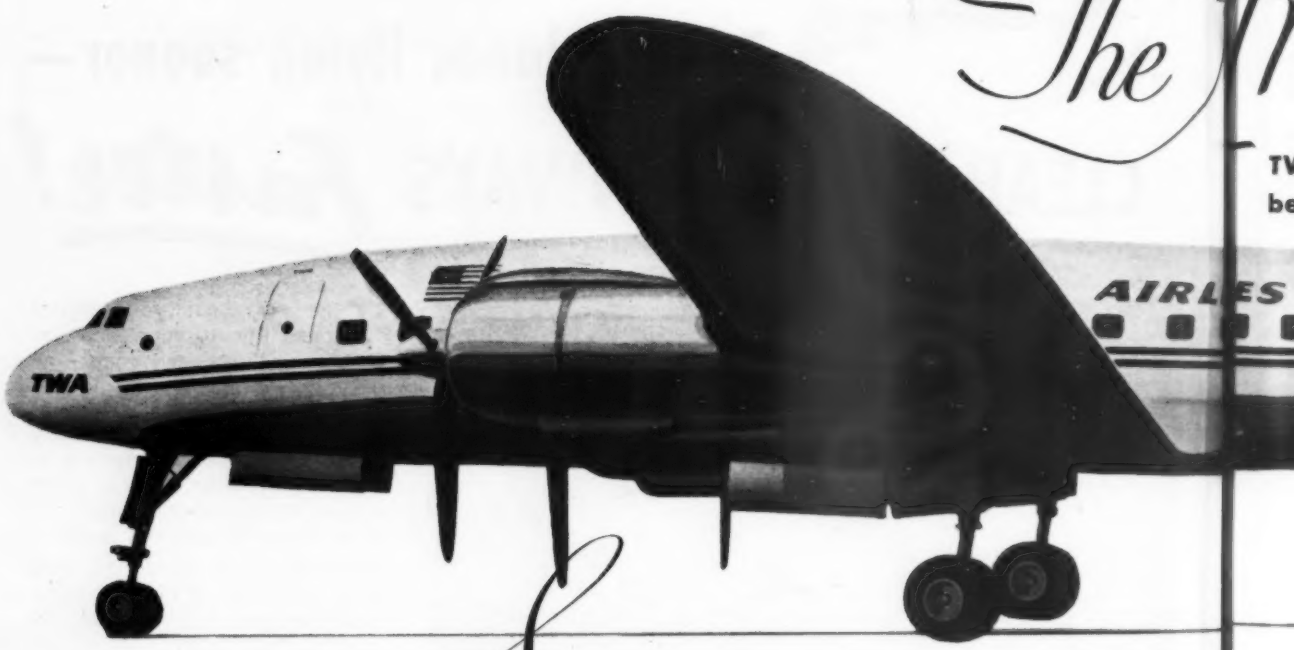
240 h.p. Walter Snow Fighter—Ice Control Unit with front plow, speed wing, center scraper and 10-ton sand-chemical spreader. Clears snow—widens and levels snow banks—scrapes hard-packed snows—spreads sand and chemicals at high speed.

WALTER MOTOR TRUCK CO.,
1001-19 Irving Ave.,
Ridgewood 27,
Queens, L. I., N. Y.

WALTER
4-POINT POSITIVE DRIVE
SNOW FIGHTERS

TWA *Presents* THE MOST LUXURIOUS TRAN ONT

The



TWA *Salutes* ALL THE FINE COMPANIE HO

Less than a year ago, the plane you see above and the service it offers consisted of nothing more than a pile of blueprints and a stack of specification sheets. Then the orders went out . . . the machines began to hum . . . the American aviation industry went to work.

On September 10, coast-to-coast air travelers saw the result of all this time, effort and ingenuity. For on this date, TWA inaugurated *transcontinental* "Ambassador" service . . . offering all the luxurious features that have distinguished TWA "Ambassador" flights to Europe, *and more!*

The plane used in this new service is one of the most powerful airliners in the skies today—the giant new Super Constellation expressly built by Lockheed for TWA. And the cabin appointments are the most luxurious ever planned for passenger comfort, including restful lean-back club chairs, full-length sleeping berths and a luxurious lounge.

TWA wishes to thank the many leading manufacturers whose contributions have helped make the "Ambassadors" the most luxurious transcontinental flights ever offered.

RAN ONTINENTAL AIR SERVICE EVER OFFERED

Ambassadors

TWA's new Super Constellations nightly between New York-Chicago-Los Angeles

NIE HO HELPED MAKE THIS NEW SERVICE POSSIBLE

ACROSS THE U.S. AND OVERSEAS . . .

FLY TWA

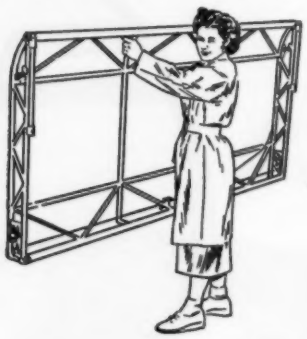
TRANS WORLD AIRLINES

U.S.A. • EUROPE • AFRICA • ASIA

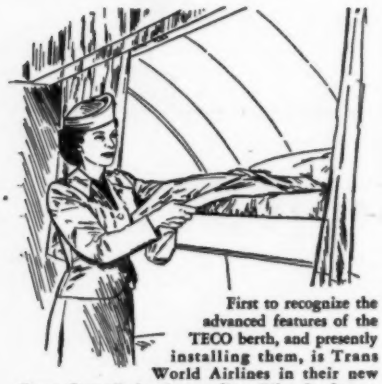
BERTH OF IDEAS ...

FOR WIDE-AWAKE AIRLINES PLANNING SLEEPER SERVICE!

Aware of an emphasis on sleeper service planning by many leading airlines, and with a true desire to keep up with all airline developments, we apportioned top engineering talent and the time needed to investigate sleeper service and berth requirements.



After extensive research and experimental efforts we found the way to produce an airline berth that is lighter, stronger, more economical to install and service, plus improved comfort and handling ease. The final result is an airline berth that has all these feature qualities – and we are proud to place the famous TECO name tag on our latest – the TECO Model 320 airline berth!



First to recognize the advanced features of the TECO berth, and presently installing them, is Trans World Airlines in their new Super Constellation luxury fleet. Like the famous line of TECO airline seats that have earned a position of leadership you can depend on the TECO Model 320 berth to live up to highest standards.

For specific information on the TECO 320 berth, write: Transport Equipment Co., 2501 North Ontario Street, Burbank, California.

manufactured by
TRANSPORT EQUIPMENT CO.
Burbank • California

REPRESENTED IN CANADA BY:
RAILWAY & POWER ENGINEERING CORPORATION LIMITED • 3745 St. James Street • Montreal 30, P. Q.

Airline Commentary

By Eric Bramley

THE CAB, as you know, has a rule against free transportation. This rule is sometimes stretched a little in Alaska. During our recent trip the president of an airline told us: "Two Eskimo boys came out to the airport the other day. They didn't have any money, but they wanted to go home for a visit—hadn't been there for a long time. Said they'd pay me next payday. I told 'em I was sorry, but the law said I couldn't do it.

•

"Well, there was the airplane, ready to leave, and several empty seats. They were dejected-looking kids. I remembered that when I was a bush pilot I used to fly their dad around—he gave me a lot of business. It seemed like a ridiculous situation—empty seats and two boys wanting to go home. So I said to 'em, 'All right, dammit, get in, but don't forget to see me next payday.' They probably won't see me, but eventually they'll get around to paying."

•

Ray Peterson, president of Northern Consolidated Airlines, broke into the conversation. "The other day, a fellow came up to me on the street and said, 'Ray, here's the money I owe you. Is this enough?' I didn't remember him from Adam, but I said I thought it was enough. I found out what his name was, and that night at home I went through all my old accounts. There he was—10 years ago. I'd carried him on the cuff. So sooner or later, they pay."

•

You might be interested in how a bush pilot promotes his business. Dennis Fenno, head of Bristol Bay Airlines, a bush operation at Dillingham, recently issued a snappy three-color promotional piece. It's an attractive folder, well illustrated, entitled, "The Lousiest Fish Camp in Alaska." Here's the stirring message:

•

"In case you are interested, this will inform you that we have a rather beat up fish camp or two, located where the scenery is poor, the fish (if you can find any) are small and scarce. The darn cook is ornery and grouchy, and spends most of his time in the sack, so you are lucky if you ever get a meal you don't have to cook yourself.

•

"There is no running water—except in the creeks—or modern plumbing such as showers. You don't need a reservation; if the place is loaded, we will lend you a tent, and we guarantee that you will *never* forget our mosquitoes—*ever*.

"We like fishing too, mostly for suckers. Nothing cheap about us —twenty-five bucks a day."

•

Inside the last fold is: "What the heck you lookin' in here for? Get off a card to Dillingham right away!"

We don't know how Fenno's fish camps are doing, but this is really the ultimate in negative selling!

•

When a CAB man went out on a field trip in Alaska, back in the rough and tumble early days, to round up the small operators and explain to them that they had to have certificates, all the operators went out the back door of the airport shack as the CAB man came in the front. And in order to get the small pilot-owners to file tariffs, the CAB first had to corner them, find out what their rates were, write them out for the operators, hand them to these individuals, and ask them to hand them back. This double-shuffle of papers constituted the filing of a tariff.

HEADQUARTERS for Southern Flight at Charlotte, N. C.

Variety Spices Southern Flight Service

Diversification stimulates profits and progress for small fixed-base operator, proving it can be done.

By Richard F. McGrath

MORE THAN A FEW of the smaller fixed-base operators in the U.S. hold that "diversification" is merely an academic name for something that only the bigger outfits at the busier airports can apply with any degree of success. There's one 20-man station, however, operating at a moderate sized airport, that isn't hindered by such bashfulness. For Richard R. Washburn's Southern Flight Service, Inc., at Charlotte, N. C., "diversification" has become a profitable reality.

Versatile Enterprise

Washburn, who used to be a Southern Airways flight and ground instructor and later its Charlotte manager, purchased the operation in April, 1949, when Southern began activating its newly certificated local service routes. What was then a small flying school grossing $57,000 a year is now a rapidly growing and versatile $215,000 enterprise encompassing:

- **Aircraft and airline maintenance,** repair, and fueling;
- **Lightplane and aero accessories** distributorships;
- **Air taxi service;**
- **Auto rental,** auto storage and I.C.C.-franchised unscheduled limousine service;
- **CAA-approved flight instruction.**

In the light of the present trend among airlines toward decentralization of maintenance functions, Southern Flight Service's contract with Southern Airways and its servicing of Piedmont's and Capital's DC-3's are interesting examples of the business that many qualified repair stations can begin eyeing with reasonable optimism—and a reminder to the small operator that high standards in airline maintenance do not necessarily require big outlays in equipment and personnel. For what he is called upon to do, just availability plus efficiency and dependability at reasonable cost will be enough.

Southern Flight handles regular daily inspections, turn-around checks, preflight runups and all fueling at Charlotte for Southern Airways, whose Hugh W. Davis, vice president-operations, terms the service "very satisfactory." Emergency maintenance, when necessary, is also undertaken for Piedmont and Capital as well as for Southern.

Beechcraft Dealer

Washburn, now a dealer for Beechcraft under Southern Airways Company, has a territory which comprises western North Carolina and a small portion of South Carolina. He has sold to date two new Twin-Beechcrafts, with five new Bonanzas and about 15 used ones. Southern Flight also holds distributorships for Narco, Goodyear, Scintilla, and Stromberg.

Air taxi service, modest but consistent, adds up to approximately 60,000 passenger-miles per month. Two Beech Bonanzas and one Cessna 120 carry an average of two passengers per trip.

Holding logically to the view that the term "flight service" properly embraces all passenger transportation, including surface travel to and from airports, Washburn refuses to restrict his activities to aviation and airplanes. Southern Flight Service is the Avis Rent-a-Car agent in Charlotte and also holds an Interstate Commerce Commission franchise for unscheduled passenger transportation. Altogether, 10 passenger cars roll up approximately 30,000 auto miles a month, 60% of which is rental business, 40% charter.

Although regarded by airline executives and local Charlotte businessmen as "one of the most aggressive and able fixed-base operators in the entire South," Washburn is quick to point out that Southern Flight Service, small though it is, is not a one-man organization. He gives major credit to his crew, chiefly to his right-hand man, Windell S. Karr.

A former pilot and mechanic with varied flying and aircraft maintenance experience ranging from 40-hp Cubs to DC-4's, Karr was associated with Twentieth Century Airlines and more recently was superintendent of maintenance for Ozark Air Lines before joining Southern Flight two years ago.

Further evidence of Washburn's prejudice against one-man operation is the little company's profit-sharing plan, under which 10% of the gross profit of each activity (air taxi, maintenance and repair, etc.) is handed back into the respective department, as an incentive toward future and larger profits.

Direct Mail

Although no more novel an idea than profit-sharing, direct-mail promotion is another big-corporation approach that Washburn is applying with continuing success. Many new accounts as well as increasing repeat business have been attracted by the simple device of constant attention to this method of selling.

Both Washburn and Karr write their own sales letters, which are mailed regularly to some 4,700 carefully selected prospects in the Carolinas. According to Washburn, there isn't a single dead card in the prospect file; it's clean and alive.

TWA Replaces More DC-3's with 4-0-4's

Trans World Airlines has put its Martin 4-0-4's into service on its medium-length routes, thus leaving only six DC-3 schedules still in service and these are temporary.

Five years ago, TWA had 76 DC-3's in service. As of this date only 43 remain, and some of these will be sold. A few of them have accumulated more than five years in the air and more than 40,000 hours flying time.

Summary of U. S. Domestic Airline Traffic for June, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton-Miles**	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	462,735	268,354,000	331,531,000	80.94	1,296,976	700,216	3,372,551	30,952,327	43,529,477	71.11	7,170,884	7,115,051	99.28
Braniff	71,468	26,434,000	38,484,000	68.69	118,535	78,773	175,516	2,901,166	4,978,043	58.28	1,046,409	1,064,742	98.40
Capital	193,289	62,909,000	98,824,000	63.66	135,012	182,652	290,638	6,613,467	12,881,996	51.34	2,321,387	2,282,111	98.42
Caribair	8,188	670,000	1,343,000	49.96	804	. . . .	2,030	56,716	132,253	42.88	51,241	51,195	99.03
C & S	49,401	17,701,000	28,126,000	62.93	62,240	72,994	98,775	1,929,824	3,437,527	56.14	833,722	840,060	98.97
Colonial	24,720	6,136,000	12,072,000	50.83	9,797	7,682	12,435	631,340	1,278,386	49.39	352,224	339,975	98.57
Continental	31,150	12,663,000	21,950,000	57.69	35,426	14,612	64,000	1,326,070	2,464,422	53.81	673,784	655,825	99.89
Delta	83,511	36,584,000	53,797,000	68.00	148,007	87,075	316,173	4,060,596	6,424,766	63.20	1,472,678	1,465,328	99.94
Eastern	323,938	154,544,000	243,404,000	63.49	431,773	293,065	550,321	16,839,746	32,744,728	51.43	4,753,069	4,586,068	99.59
Hawaiian	33,183	4,307,000	7,107,000	60.60	2,089	8,672	98,470	453,672	851,148	53.30	325,887	237,363	98.65
MCA *	40,220	12,369,000	22,034,000	56.12	34,931	21,845	42,956	1,284,151	2,211,415	58.07	781,161	767,584	99.85
National	49,520	31,324,000	47,270,000	66.27	89,763	37,964	388,044	3,697,521	5,906,184	62.60	1,120,479	1,170,247	94.51
Northeast	41,906	8,291,000	13,053,000	63.52	12,440	14,110	25,573	801,448	1,344,477	59.61	433,280	432,869	96.91
Northwest	92,370	57,753,000	76,550,000	75.44	229,045	123,561	263,531	6,145,412	9,549,165	64.36	1,379,848	1,382,039	98.26
Trans Pac.	16,871	2,231,000	4,420,000	50.48	1,679	149	4,326	179,075	385,867	46.41	157,846	128,170	99.59
TWA	214,982	175,902,000	200,961,000	87.53	823,365	469,051	1,143,158	19,268,371	25,643,814	75.14	4,540,259	4,646,850	96.30
United	323,122	225,808,000	282,886,000	79.82	1,584,588	756,629	1,980,941	25,945,575	41,826,309	62.03	6,299,750	6,219,291	99.70
Western	65,118	25,778,000	37,649,000	68.47	96,909	41,112	89,808	2,690,366	4,087,800	65.81	1,036,644	1,043,509	99.05
TOTALS	2,125,692	1,129,758,000	1,521,459,000	74.25	5,113,379	2,909,762	8,919,246	125,776,843	199,677,777	62.99	34,750,552	34,428,277	98.70

* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets.
** Includes air parcel post.

NOTE: Figures include both scheduled and non-scheduled operations.

Summary of U. S. Domestic Airline Traffic for Six Months Ending June 30, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton-Miles***	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
American	2,322,974	1,326,017,000	1,848,275,000	71.74	8,383,940	4,591,917	20,911,923	162,766,996	244,995,576	66.44	41,075,037	41,948,923	96.83
Braniff	391,661	139,690,000	223,099,000	62.61	777,562	443,822	986,178	15,569,820	28,843,199	53.98	6,024,143	6,249,604	95.89
Capital	917,183	284,905,000	519,076,000	54.89	950,591	1,127,728	1,803,910	31,113,124	67,022,040	46.42	12,477,766	12,714,586	95.44
Caribair	57,452	4,595,000	9,184,000	50.03	5,386	. . . .	14,816	390,056	892,332	43.71	345,818	344,930	99.24
C & S	256,778	96,383,000	155,891,000	61.83	382,622	400,914	599,953	10,620,473	19,030,316	55.81	4,671,335	4,772,773	97.43
Colonial	115,668	29,181,000	62,224,000	46.90	66,161	45,002	70,692	3,086,535	6,509,885	47.41	1,881,083	1,927,034	96.06
Continental	168,869	67,315,000	129,173,000	52.11	261,693	95,305	373,189	7,173,593	14,368,025	49.93	3,932,349	3,823,973	99.44
Delta	487,161	230,383,000	355,091,000	64.88	966,584	580,543	2,044,372	25,759,598	42,954,289	59.97	9,271,864	9,264,115	98.90
Eastern	1,838,152	918,747,000	1,496,331,000	61.40	2,927,170	1,780,705	3,237,290	103,402,579	204,106,815	50.66	31,111,929	30,682,450	98.01
Hawaiian	165,681	21,452,000	35,457,000	60.50	13,172	49,897	457,834	2,285,736	4,347,352	52.58	1,679,152	1,298,870	98.62
MCA *	208,512	64,298,000	118,683,000	54.18	211,073	122,289	273,414	6,764,852	12,130,942	55.76	4,272,134	4,322,593	96.30
National	359,467	246,006,000	376,621,000	65.32	713,558	333,940	2,580,158	28,692,756	47,866,359	59.94	8,440,444	8,346,994	97.39
Northeast	172,051	33,366,000	61,369,000	54.37	75,076	89,248	111,923	3,339,327	6,176,087	54.07	2,065,226	2,304,076	87.85
Northwest	384,771	253,630,000	387,630,000	65.43	1,322,700	811,106	1,647,079	28,340,992	50,432,130	56.20	7,030,355	7,225,138	95.87
Trans Pac.	77,012	9,631,000	21,946,000	43.88	10,723	4,146	22,810	783,694	1,940,177	40.39	784,701	680,375	99.68
TWA	1,092,999	837,118,000	1,109,838,000	75.43	5,617,915	2,937,687	6,986,300	95,688,189	143,314,419	66.77	25,779,576	27,046,680	94.50
United	1,553,596	1,034,363,000	1,464,620,000	70.62	10,200,673	4,527,675	12,512,749	126,263,871	218,790,141	57.71	33,484,489	33,944,936	97.04
Western**	373,396	140,485,000	218,039,000	64.43	667,182	260,852	480,852	14,830,985	23,244,100	63.80	6,189,423	6,286,277	98.05
TOTALS	10,943,383	5,737,565,000	8,592,547,000	66.77	33,553,781	18,205,976	55,115,442	666,873,176	1,136,964,184	58.65	200,516,824	203,184,327	98.71

* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of route 106 are carried separately on local service airlines summary sheet.
** Western's figures include Inland's operations through April 9, 1952, effective date of complete absorption of Inland by Western.
*** Includes air parcel post.

NOTE: 1. Figures include both scheduled and non-scheduled operations.
2. Schedules were curtailed during May because of nationwide gasoline shortage.

Summary of U. S. Local Service Airline Traffic for June, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
All American	19,277	2,894,000	6,323,000	45.77	5,336	9,816	. . .	298,413	722,592	41.30	301,080	301,888	96.02
Bonanza	2,940	718,000	2,118,000	33.90	765	164	1,952	70,163	202,805	34.60	84,502	84,990	99.43
Central	4,013	592,000	3,138,000	18.87	2,756	970	2,126	62,928	358,672	17.54	149,860	149,820	99.57
Empire	4,416	874,000	2,178,000	40.13	1,541	1,661	. . .	84,057	237,118	35.45	103,749	102,420	99.90
Frontier	11,461	3,088,000	8,234,000	37.50	8,256	6,596	33,325	358,444	786,926	45.55	393,327	391,020	99.10
Lake Cent.	3,474	577,000	2,142,000	26.94	1,150	4,294	. . .	58,091	245,007	23.71	107,303	109,536	97.39
MCA	4,639	918,000	1,989,000	46.15	1,668	2,046	2,162	93,509	198,886	47.02	82,869	81,765	99.59
Ozark	8,064	1,364,000	5,649,000	24.15	3,645	7,239	. . .	138,531	557,009	24.87	225,967	225,420	98.87
Piedmont	20,605	4,600,000	8,029,000	57.29	6,839	7,046	13,271	467,496	917,578	50.95	382,324	381,339	99.89
Pioneer	16,562	4,320,000	9,514,000	45.41	9,635	3,258	13,126	460,198	938,087	49.06	330,132	330,007	99.05
Robinson	9,186	1,695,000	3,310,000	51.21	2,919	5,040	2,546	160,265	351,600	45.58	157,416	155,959	98.18
Southern	10,666	1,831,000	5,710,000	32.07	6,708	7,495	. . .	189,556	515,766	36.75	271,885	272,220	99.88
Southwest	15,020	2,874,000	4,965,000	57.89	5,871	3,420	9,280	307,045	571,291	53.75	238,038	232,852	99.47
Trans-Texas	6,475	1,687,000	4,945,000	34.12	4,914	2,169	5,459	181,779	565,152	32.16	235,480	219,732	99.92
West Coast	9,547	1,477,000	2,690,000	54.91	984	940	3,133	135,978	259,955	52.31	129,515	125,850	99.61
Wiggins	382	38,000	162,000	23.46	112	141	. . .	3,702	17,308	21.39	42,894	45,445	89.30
Wis. Cent.	14,333	2,468,000	5,335,000	46.26	8,143	10,174	. . .	253,265	609,763	41.53	254,068	265,044	95.86
TOTALS	161,060	32,015,000	76,431,000	41.89	71,242	72,469	86,380	3,323,420	8,055,515	41.26	3,490,409	3,475,303	98.65
						Helicopter Mail Service							
NAS	. . .	. . . .	. . . .	. . .	7,468	. . .	. . .	7,468	17,907	41.70	28,642	29,338	97.63
Los Angeles	. . .	. . . .	. . . .	. . .	3,534	. . .	. . .	3,534	8,109	43.58	21,395	22,106	96.78

NOTE: 1. Figures include both scheduled and non-scheduled operations.
2. Mid-West Airlines terminated its local service operations May 15 due to non-renewal of the line's certificate by CAB.

U. S. International Airline Revenues & Expenses, Quarter Ending June 30, 1952

Airlines	Total Operating Revenues	Passenger Revenues	U. S. Mail Revenues	Foreign Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income Before Income Taxes
American	$ 1,235,728	$ 1,089,302	$ -43,362	$ 24,941	$ 784	$ 106,335	$ 17,672	$ 4,953	$ 1,399,132	$ 759,924	$ 639,208	$ -163,404
Braniff	2,080,665	1,416,255	499,374	33,061	....	102,891	41,936	....	2,511,577	1,129,096	1,382,481	-430,912
C & S	1,256,927	673,782	463,317	3,502	....	70,860	26,480	....	880,430	413,291	467,139	376,497
Colonial	494,323	462,089	15,180	2,753	....	6,337	2,086	....	476,374	186,769	289,605	17,949
Eastern	2,024,745	1,564,187	69,571	....	....	25,373	24,563	340,310	1,544,338	998,897	545,441	480,407
National	381,055	355,807	2,232	....	3,857	13,161	5,058	940	552,864	157,805	395,059	-171,809
Northwest	5,175,522	2,457,535	1,697,664	160,177	21,605	677,661	27,424	91,816	5,046,588	2,175,546	2,871,042	128,934
Panagra	3,616,479	2,898,691	155,700	132,806	....	270,748	96,038	75	3,983,994	1,847,382	2,136,612	-367,515
PAA												
Latin Amer.	15,651,900	11,030,520	1,806,750	406,591	....	1,839,185	299,730	101,141	18,435,053	8,128,569	10,306,484	-2,783,153
Atlantic	18,650,233	12,929,426	3,066,600	597,973	....	1,436,877	307,939	199,498	16,920,917	8,159,415	8,761,502	1,729,316
Pacific	10,978,193	6,728,421	2,850,312	288,244	....	842,399	110,085	55,019	9,222,461	5,332,756	3,889,705	1,755,732
Alaska	1,884,377	1,073,198	285,740	....	....	340,174	13,921	166,021	1,620,316	861,863	758,453	264,061
TWA *	11,147,787	9,502,004	-279,645	770,169	....	809,408	205,827	43,195	11,793,143	5,522,529	6,270,614	-645,356
United	2,199,250	1,938,928	161,560	....	....	68,254	12,382	....	2,439,871	1,418,457	1,021,414	-240,621
TOTALS	76,777,184	54,114,145	10,750,993	2,420,217	26,246	6,609,663	1,191,141	1,002,968	76,827,058	37,092,299	39,734,759	-49,874

* Compensation for the carriage of U.S. mail on TWA's international routes has been paid on basis of temporary rates since beginning of operations in February, 1946. These temporary rates may be changed upwards or downwards when permanent rates are established by CAB.

NOTE: 1. Schedules were curtailed during May because of nationwide gasoline shortage.
2. Data in above tabulations were compiled by American Aviation Publications from reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

U. S. International Airline Traffic for June, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	U. S. Mail Ton Miles *	Foreign Mail Ton Miles	Express Ton Miles	Freight Ton Miles	Total Ton Miles Rev. Traffic	Available Ton Miles Flown	% Available Ton Miles Used	Revenue Plane Miles	Scheduled Miles	% Scheduled Miles Comp.
American	10,022	7,626,000	12,338,000	61.81	13,843	3,726	730	178,621	994,410	1,691,767	58.78	241,378	240,037	98.97
Braniff	2,928	7,093,000	15,108,000	46.95	40,197	1,471	....	109,717	965,979	2,173,970	44.43	355,881	359,515	98.99
C & S	3,026	3,879,000	6,436,000	60.27	4,662	561	....	112,970	520,648	891,192	58.42	139,260	139,260	100.00
Colonial	4,549	3,559,000	4,349,000	81.83	759	235	....	4,891	380,922	520,256	73.22	85,360	71,464	99.99
Eastern	11,936	17,795,000	22,357,000	79.59	47,328	....	....	30,164	1,872,116	3,803,020	49.23	375,285	245,024	99.58
National	8,039	2,051,000	3,144,000	65.24	985	....	2,423	16,807	229,800	389,635	58.98	54,788	62,880	75.17
Northwest	9,001	14,775,000	23,088,000	63.99	103,014	33,520	28,637	667,442	2,407,747	3,578,972	67.27	571,766	541,311	97.58
Panagra	9,365	10,222,000	18,663,000	54.77	29,758	23,958	....	183,021	1,375,353	2,603,895	52.83	477,123	478,139	97.94
PAA														
Latin Amer.	70,469	68,528,000	109,501,000	62.58	235,924	60,122	....	1,875,437	8,685,342	14,323,589	60.64	2,445,021	1,738,617	98.49
Atlantic	40,716	65,744,000	93,517,000	70.30	478,064	118,567	....	1,136,948	8,803,456	12,300,191	71.57	1,585,162	1,572,792	99.45
Pacific	11,166	36,083,000	43,609,000	82.74	320,990	79,270	....	637,648	4,958,882	7,346,504	67.50	877,561	842,805	99.48
Alaska	8,604	10,229,000	17,207,000	59.45	44,987	....	....	571,538	1,686,330	3,018,906	55.86	437,516	296,820	100.00
TWA	17,370	47,130,000	61,245,000	76.95	302,838	123,804	....	652,497	6,255,548	8,592,623	72.80	1,324,161	1,317,758	99.35
United	5,672	14,038,000	14,381,000	97.61	68,180	....	....	89,593	1,633,566	1,906,710	85.67	269,816	255,416	100.00
TOTALS	212,863	308,752,000	444,943,000	69.39	1,691,529	445,234	31,790	6,267,294	40,770,099	63,141,230	64.57	9,240,078	8,161,838	98.85

* Includes air parcel post.

NOTE: Figures include both scheduled and non-scheduled operations.

U. S. Local Service Airline Traffic, Six Months Ending June 30, 1952

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton Miles	Express Ton Miles	Freight Ton Miles	Total Ton Miles Rev. Traffic *	Available Ton Miles Flown	% Available Ton Miles Used	Revenue Plane Miles	Scheduled Miles	% Scheduled Miles Completed
All American	81,448	11,865,000	33,218,000	35.72	29,741	58,306	....	1,249,498	3,796,272	32.91	1,581,780	1,686,810	90.10
Bonanza	17,229	4,367,000	10,903,000	40.05	3,769	1,300	10,020	431,162	1,116,781	38.61	468,064	476,403	96.99
Central	21,735	3,265,000	16,428,000	19.87	14,685	5,094	10,898	338,609	1,876,343	18.05	782,752	787,189	97.98
Empire	24,466	4,818,000	13,101,000	36.77	13,361	8,399	....	475,769	1,425,767	33.37	623,833	621,348	98.58
Frontier	57,008	15,017,000	47,590,000	31.55	52,968	36,571	213,067	1,811,325	4,059,245	44.62	2,270,043	2,287,432	98.30
Lake Cent.	16,104	2,704,000	12,310,000	21.96	7,283	24,146	485	283,419	1,419,440	19.97	615,988	651,506	92.19
MCA*	21,230	4,215,000	10,484,000	40.20	8,797	13,702	16,825	441,420	1,073,847	41.11	447,436	479,217	92.27
Mid-West**	866	128,000	1,055,000	12.13	3,406	....	....	13,975	116,098	12.04	263,864	334,832	78.80
Ozark*	33,405	5,527,000	32,487,000	17.01	18,896	31,837	....	567,833	3,203,990	17.73	1,299,506	1,388,914	92.05
Piedmont	99,992	22,835,000	48,267,000	47.31	38,859	37,502	61,337	2,324,526	5,516,325	42.14	2,298,469	2,309,804	98.62
Pioneer	86,919	22,410,000	49,629,000	45.15	60,842	21,044	88,401	2,422,143	4,922,766	49.20	1,990,415	2,005,412	98.88
Robinson	42,777	7,242,000	16,530,000	43.81	15,494	24,904	13,923	710,968	1,707,579	41.64	791,166	821,819	91.57
Southern	57,788	9,864,000	34,264,000	28.79	43,068	45,654	....	1,035,390	3,097,500	33.43	1,631,581	1,645,272	99.09
Southwest	75,416	14,032,000	26,376,000	53.20	38,537	21,399	65,872	1,534,003	3,018,238	50.82	1,257,599	1,277,022	96.57
Trans-Texas	36,277	8,799,000	29,237,000	29.89	30,189	13,393	42,424	960,792	3,201,652	30.01	1,392,225	1,363,330	98.17
West Coast	43,712	6,625,000	14,914,000	44.42	5,240	5,692	22,589	630,549	1,384,481	45.54	715,607	714,665	97.43
Wiggins	1,329	122,000	736,000	16.58	492	741	....	13,236	85,491	15.48	204,781	272,901	73.58
Wis. Central	61,804	9,804,000	23,708,000	41.35	41,204	58,134	....	1,028,844	2,709,724	37.97	1,129,052	1,201,882	93.52
TOTALS	779,505	153,579,000	421,237,000	36.46	426,831	407,818	545,801	16,273,461	43,730,839	37.21	19,764,161	20,325,798	95.62
Helicopter Mail Service													
HAS	....	....	....	....	19,285	....	....	19,285	45,200	42.66	169,349	174,956	96.79
Los Angeles	....	....	....	....	21,722	....	....	21,722	46,654	46.56	123,096	134,360	91.62

* Figures cover local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation Case.
** Mid-West Airlines terminated its local service operations May 15, 1952, due to non-renewal of the line's certificate by CAB.

NOTE: 1. Figures include both scheduled and non-scheduled operations.
2. Schedules were curtailed during May because of Nationwide gasoline shortage.

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New Cities May Get Coach Flights

Domestic certificated airlines last week embarked on another expansion program for scheduled air coach services with emphasis on extension of the low-fare operations to new cities. Capital, TWA, Northwest, and United all filed tariffs with CAB naming fares for additional operations. Colonial Airlines, not now in the coach business, proposed to blanket its major domestic routes for the first time with coach service.

Capital's proposal is to extend its Chicago-Washington flights to Norfolk, thus providing first-time coach service over the Washington-Norfolk leg. Common interests between Washington and the naval and marine installations at Norfolk, Capital officials feel, will make the operation one of its most successful. Fare will be $6.80 as compared to the standard $9.65 fare. Inaugural is planned for "early September."

TWA, on September 2, opened a shuttle coach service between Pittsburgh and New York as the first step in its expansion. On September 27, new service will be offered between Phoenix, Albuquerque, Amarillo, and Wichita, on the one hand, and Chicago and points east.

First-time transcontinental coach service out of Philadelphia at a $99 fare is also planned by TWA, as well as Chicago-Kansas City service and certain new operations to and from Oakland-San Francisco. Carrier uses DC-4's and high-density Constellations in its coach service.

Northwest plans to link Madison, Wis., and Rochester, Minn., to Detroit and New York with coach flights on September 28. It would involve first-time coach service for Madison and Rochester.

United filed tariffs for a new coach operation between Chicago and Seattle-Portland which it hopes to render on a "non-stop" basis, subject only to an intermediate fuel stop. Company plans to start the service on September 28.

Colonial's entry into the coach field is slated for September 27. Company proposes a low-fare service over the highly-competitive New York-Montreal segment. Fare would be $14.20 as compared to the standard fare of $21.30.

Colonial also intends to operate coach flights between Albany and New York and between Syracuse, Binghamton, Wilkes-Barre and Washington. Service will be confined to night-time operations between 10 p.m. and 4 a.m.

Southern Airways Consent Order Issued

A consent order directing Southern Airways to cease and desist from certain violations of the Civil Aeronautics Act has been issued by CAB. Violations arose largely out of transactions between Southern and its affiliate, Southern Airways Company, a sales organization.

The airline and its president Frank W. Hulse, CAB said, have voluntarily discontinued activities and practices which prompted investigation by the Board's enforcement office. Largely, the charges involved violations of a Board order approving interlocking relationships which limited commercial transactions between the airline and sales company to a maximum of $200 per unit and $10,000 collectively per year. As part of his agreement with CAB, Hulse has agreed to dispose of his holdings in the sales company.

Other charges against the airline involve tariff violations whereby transportation credits were extended in exchange for services rendered, practices which the company has ceased.

CAB CALENDAR

Sept. 15—Hearing in Robin Airlines Revocation Proceeding. Docket 5475. Los Angeles, Calif.

Sept. 18—Oral argument before the Board in Lake Central Airlines Management Investigation. Docket 2832 et al. Washington, D. C.

Sept. 29—Hearing in Trans-Atlantic Final Mail Rate Case (Pan American and TWA). Docket 1706 et al. Washington, D. C.

Sept. 30—Hearing in Klamath Falls-Medford Service Case (United and West Coast). Docket 4191 et al. Tentative.

NEW CAB DECISIONS

Non-scheduled airlines' blanket exemption which permits operation of military contract flights without limitations on regularity or frequency extended by CAB beyond September 2, through December 1, 1953.

New increased temporary mail rates proposed for Central Airlines involving approximately $272,765 in additional back pay and new future rates designed to produce about $1,425,000 annually, beginning July 1, 1952.

Air Transport Associates' motion to expand Pacific Northwest—Alaska Tariff Investigation to consider, along with rate and fare matters, the adequacy of service between the U. S. and Alaska, denied on grounds that no "extraordinary circumstances" were advanced warranting expansion.

AS OF NOW . . .

• **The New York-Balboa Through Service proceeding,** which involves important interchange services between New York, other important east coast cities, and Latin America, is now at the White House awaiting Presidential action. CAB has completed its handling of the case, has voted on it, but must await the President's final ruling. In addition to various interchanges, case also involves Braniff's right to serve Miami and possible extension of Eastern from Miami to Havana.

• **CAB's general passenger fare investigation** was slated to take a back seat to the more limited, but highly significant, investigation of the airlines' proposal to eliminate round-trip discounts. But with American, United, TWA and C&S pulling out of the round-trip case, the order may again be changed with CAB dropping the round-trip case and concentrating solely on the general fare probe.

• Next step in the **Delta-C&S Merger Case** will be an examiner's report, which can be expected in six weeks to two months. After that, oral argument and possibly a final decision by the end of the year. Because the agreement involves transfer of C&S' Caribbean routes to the merged company, Presidential approval of that portion of the deal, at least, will be required. This may delay issuance of the final decision somewhat.

• All procedural loose ends in the **Colonial Airlines Merger** picture before CAB have been tied together and the parties are ready to begin their cases. Hearings will start October 23, with either a Colonial-Eastern or a Colonial-National merger a possibility. Colonial and Eastern have submitted a voluntary agreement for CAB approval. This will be considered jointly with CAB's investigation of a possible Colonial-National consolidation.

• Pushed in the background with further procedural steps suspended indefinitely is the complex **New England-Southern States Merger Case** which involves a voluntary **Delta-Northeast** merger proposal and possible transfer of Capital's southern routes Nos. 51 and 55 to Delta, C&S, or National. The case may be revived after current voluntary mergers are consummated.

. . . W.V.H.

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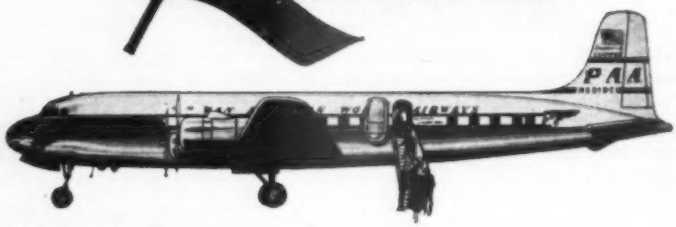

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People

ADMINISTRATIVE

Arthur F. Kelly

Arthur F. Kelly, vice president of Western Air Lines, is the newly elected president of the Air Force Association. He succeeds **Harold Stuart,** former Assistant Secretary of the Air Force. Stuart was named chairman of the AFA board of directors.

Earle T. Parrish appointed comptroller of Transocean Air Lines. Parrish joined TOAL in November, 1948, after 23 years service with General Motors Corporation.

Robert F. Buelow, formerly special assistant to Northeast Airlines' vice president-operations and engineering, has joined Grand Central Aircraft Co. as staff assistant to the head of engineering for production control at the company's Tucson, Ariz., plant where it is engaged in a program of modification of B-47's and B-29's.

TRAFFIC & SALES

Richard J. Forhan is now Central European regional director for Pan American World Airways. He replaced **Nelson David,** who resigned recently to take a position with Alaska Airlines.

John Garzero has become assistant to the director of sales-Europe for Trans World Airlines, succeeding **Roy Fuller,** who has returned to the U. S. for reassignment.

Charley R. Hussey has been promoted by Northwest Airlines from manager-agency sales to assistant director of passenger sales. In his new position, Hussey will be responsible for NWA's sales division's agency, interline, tours, and sales promotion branches. . . . **Jack Keillor** has been named to take over the post of manager-agency sales and **Charles W. Grosser** named to the newly created post of manager-tours.

Bernard Sturm, formerly Colonial Airlines' director of tariffs and schedules, is now with Trans World Airlines as tariff representative.

T. S. Miles resigned as assistant to the general manager of Delta-Chicago & Southern Air Lines to join the Air Traffic Conference of America as director-interline reservations procedures.

Peter Goth, formerly Detroit district cargo sales rep. for KLM Royal Dutch Airlines, has transferred to Chicago as U. S. mid-west cargo sales rep. **Robert Moran** has been named to replace Goth in the Detroit post.

James C. Potter is now district sales manager in Cleveland for Northwest Airlines.

Dave Brewer and **Jay Constantz** of Trans World Airlines' regulatory proceedings staff in Washington, D. C., have taken over the duties of **Jack Stratton,** former staff director who resigned to become a budget officer with Lever Bros. Brewer is now director of route analysis and development, while Constantz assumed the duties of director-regulatory proceedings.

OPERATIONS—MAINTENANCE

H. J. Merchant, assistant general manager of ground services for United Air Lines since 1948, has been named to a newly created post as manager of ground services for UAL's line stations. . . . **W. G. Carson,** formerly ground services manager at Medford, Ore., named assistant to Merchant. **K. W. Cook** transferred from Rock Springs, Wyo., where United has suspended service, to replace Carson at Medford. Continuing the chain reaction, **C. E. Bates** has left Youngstown for Milwaukee as successor to **S. P. Parker,** recently appointed station service manager at Denver. **J. M. Fogarty** leaves Santa Barbara to replace Bates at Youngstown.

Clark Preston, Lou Haight and **Bob Roberts** have been promoted to district managers by Mohawk Airlines (RAL) at Watertown, Utica/Rome, and Syracuse, respectively.

Paula N. Osborne is now chief stewardess for Lake Central Airlines.

700 Years of Aviation Know-How: United Air Lines president W. A. Patterson pins a 25-year pin on Corporation Secretary S. P. Martin as 26 other new members of United's Quarter Century Club look on. Representing virtually every phase of airline operations, the quarter-century veterans pictured above include maintenance men, station managers, pilots, dispatchers, instructors, and financial experts. They are (front row from left) Charles Ferry, San Francisco; Don Stombaugh, San Francisco; R. C. Wright, Chicago; Patterson and Martin; Harvey Beery, Los Angeles; Humbert Costa, San Francisco; (second row from left) Capt. R. L. Wagner, San Francisco; R. D. Edwards, Des Moines; James Gowans, Denver; E. M. Gordon, San Francisco; H. F. Salisbury, San Francisco; Capt. R. J. Johnson, San Francisco; E. M. Rosier, San Francisco; C. M. Wall, Honolulu; C. A. Sluder, Omaha; Gordon Wood, San Francisco; (Back row from left) R. J. Sedlock, San Francisco; H. W. Thomas, Salt Lake City; R. G. Durke, Red Bluff; Roy S. Buess, Chicago; E. S. Maroney, Portland; R. J. Burns, Salt Lake City; L. R. Carr, San Francisco; Ray W. Gohr, Denver; N. J. Bousman, Chicago; H. W. Mossman, San Francisco. Capt. Harry W. Huking, San Francisco, was en route from Honolulu at the time of the presentations. These 28 employes, as new members of United's "Quarter Century Club," swell the ranks of the group to 44.

International Report

Conference 'Down Under' on Pacific

At the end of last month an important but unpublicized conference took place in Canberra between top Australian, New Zealand, and United Kingdom governmental civil aviation men "to review the position of those air services in which the three governments are jointly interested and discuss further developments in their operation." It is believed that three major items were discussed:

• **Integration** of the trans-Pacific stage of British Overseas Airways Corp.'s projected round-the-world service with British Commonwealth Pacific Airlines' present Australasia-North America operation;

• **Procurement** of new equipment to replace Tasman Empire Airways' flying boats, bearing in mind interchange requirements to enable BOAC to use the TEAL route between Australia and New Zealand on its round-the-world service (the Bristol Britannia seems the most likely choice as this aircraft will fly the corporation's world route);

• **The U.K. and Australian** attitude toward the introduction of tourist fares between North America and Australasia (BCPA would probably like to wait until its Douglas DC-6's are replaced by de Havilland Comets in three years' time).

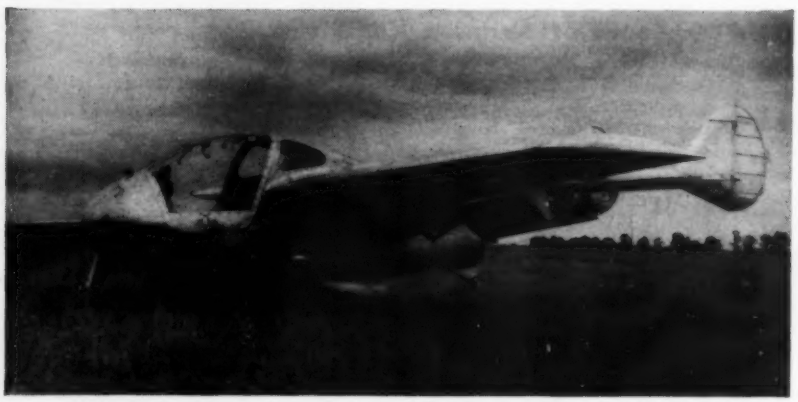
BOAC's projected trans-Pacific operation is understood to have started some serious thinking in Australia and New Zealand. One report states that Qantas Empire Airways, Australia's flag carrier, is considering the inauguration of a trans-Pacific service. This project would probably involve merging BCPA with QEA in view of the Australian government's holding in both carriers.

Another Australasian carrier whose future is reportedly in the melting pot is Tasman Empire Airways.

Gap Widens Between BOAC and SAA

South African Airways will shortly open an office in Rome, the company's third outside South Africa (the others are at London and Nairobi). Hitherto, SAA's affairs in Italy have been handled by British Overseas Airways Corp., partner in the London-Johannesburg "Springbok" service.

This opening of independent premises may be seen as new evidence of the uneasiness in the partnership which has become increasingly apparent since the two carriers selected different equipment for the route several years ago (originally both flew Avro Yorks; later SAA switched to Douglas DC-4's and then to Lockheed Constellations, while BOAC successively operated Short Solent flying boats, Handley Page Hermes, and de Havilland Comets).



Jet-powered personal plane, France's SIPA 200, has resumed its flight test program following completion of modification work to improve access to cockpit, strengthen tail booms, and install radio equipment. The modified prototype is expected to cruise at 250 mph.

SR/45 Princess Starts Flight Test Program

First flight of the 140-ton Saunders-Roe SR/45 Princess took place just two days after the ten-engine flying boat was launched. The turboprop-powered Princess remained airborne for 32 minutes with Geoffrey Tyson, SARO's chief test pilot, at the controls. Takeoff, handling in the air, and landing were all reported as completely satisfactory.

Completion of the second and third Princess boats will be deferred until the more powerful Bristol Proteus III engine is available.

French Independent To Fly Armagnacs

Transports Aeriens Intercontinentaux (TAI) will operate four SNCA du Sud-Est Armagnac transports under an agreement just concluded between the French government and the independent airline.

One of the big four-engine planes is already flying under the TAI flag and a second aircraft was due to be delivered at the end of August. Initially the Armagnacs will be used for the transport of pilgrims between North Africa and Jedda (airport for Mecca), but effective October 1 the planes will operate a daily service between Paris and Casablanca.

French Switch Funds To Air Industry

To avoid interruption of current production due to lack of "off-shore" funds, the French government has decided to transfer the equivalent of $48,570,000 from other departmental budgets to the Air Ministry. Among the appropriations switched are $11,000,000 previously assigned to the construction of NATO airfields and a similar sum from the Army department budget.

The governmental action will avoid serious delays in the production of the swept-wing Dassault MD 452 jet fighter and the Nord 2501 cargo transport.

New Brazilian to N. Y.

The Brazilian Air Ministry is reported to have awarded Cruzeiro do Sul's operating license for the Rio de Janeiro-New York route to Loide Aereo Nacional. The new carrier plans to purchase six Douglas DC-6B's for this operation.

Sweden Runs Tests . . .

. . . on Baby Delta Research Craft

Svenska Aeroplan AB's unconventional Saab-210 Draken delta-wing research aircraft has now completed over 100 flights and has achieved comparatively high speeds despite its low-power Armstrong Siddeley Adder gas turbine (1,050 pounds static thrust), which is the only non-Swedish major unit in the plane.

Designed and built within 18 months, the Saab-210 is unusual in that the wing's chord is considerably greater than its span—the aspect ratio is extremely low. Another unique feature is that the wing has a planform of two triangles, a "double" delta form.

The Saab-210 lacks a conventional stabilizer, the wing control surfaces being combined elevators and ailerons (elevons) operated by a Saab-designed hydraulic booster system. For test purposes the main gear of the retractable tricycle undercarriage can be moved either forward or backward.

The center of gravity can be shifted during flight by pumping liquid between the nose and rear trim tanks. The plane has a drag parachute installation and a Saab-designed ejector seat. Measuring apparatus includes a movie-camera and an oscillograph.

BEA Warns Against 'Copter 'Over-Optimism'

"It is doubtful if an economic helicopter of sufficient size will be ready for use on passenger services before 1958, possibly not until 1960," according to Lord Douglas of Kirtleside, chairman of British European Airways. "Beware of the over-optimism of the enthusiasts," he added.

BEA considers the helicopter as the speediest and most practical means of transport between cities from 50 to 300 miles apart, but the corporation is awaiting large rotorcraft carrying 35 to 40 passengers and equipped with at least two engines before developing large-scale helicopter operations.

Fokker-Fairchild Agreement Signed

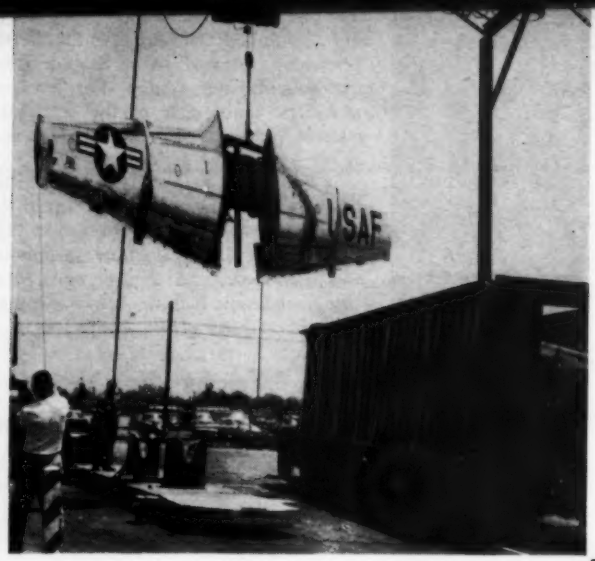
Fokker Aircraft Co. of The Netherlands and Fairchild Airplane and Engine Corp. have signed an agreement whereby Fairchild will handle the sales organization of all Fokker planes in the U. S. and has an option on all manufacturing rights in this country for the Dutch firm's models.

At the same time Fairchild "as far as practicable" transfers to Fokker European sales, repair, and service rights of its products.

Under the agreement Fairchild will handle the S-11 and S-12 primary trainers, the S-13 crew trainer, and the S-14 jet trainer, as well as the twin-engine F-27 feeder transport. Both firms will cooperate in the technical development of the latter plane, which will be called the Friendship in the 28-passenger version, and Freightship as an all-cargo craft.

Freighter for U. S. ?

Blackburn and General Aircraft of Britain, hoping to sell its four-engine Universal Freighter in Canada and the U. S., is sending its sales director, Air Vice Marshal H. N. Thornton to North America this fall. Thornton is a former British Air Attaché in Washington.



Cross-country trip comes to an end for a Lockheed T-33 jet trainer wing as it is lifted from top of the specially fitted van which had carried it from the subcontractor, Beech Aircraft Corp., in Wichita, Kansas, to Lockheed's plant at Van Nuys, Calif. Truck, which holds four such wings, makes the run in 72 hours ordinarily, can do it in 40 if need be.

The Production Picture

For heavy presses, bigger dies. Die block (right) weighs 44,600 pounds, stands 12 feet high, 6 feet 10 inches wide, and 13 inches thick. Made of a special alloy steel called Hardtem, it is the largest die block ever made by its manufacturer, the Heppenstall Co., of Pittsburgh. Even larger dies will be needed by the new heavy presses now being built for the USAF. Presses currently used exert pressures up to 18,000 tons; new ones will bring the figure up to 50,000 tons and will cut time and cost in forging aircraft components.

Jet engines get ceramic coatings on their inner combustion chamber liners at Solar Aircraft Company's San Diego plant. Coating permits use of less strategic alloys, saves high-alloy material for other uses. Solar is also applying the "Solaramic Process" to piston engines and civilian industrial equipment.

Production Spotlight

Services Sound Off On APB Staff Study

Both the Navy and the Air Force have informed Acting Aircraft Production Board Chairman William L. Campbell what they think of the recent APB staff study to reduce the number of military aircraft types, and Campbell confesses the services are strongly opposed to some of the recommendations. He has indicated, however, that an attempt to work out the differences would be made when the full APB meets September 12.

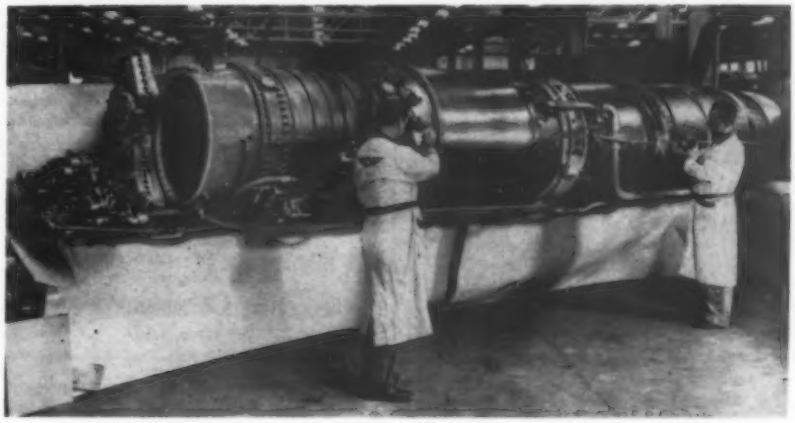
Campbell refused to state what the military services objected to specifically in the APB study. But Defense Secretary Lovett had indicated earlier that he was opposed to having men with little experience in aircraft production tell the military which planes should be built and which discarded.

Reuther Blasts 'Backward' Firms

CIO-Autoworkers president, Walter P. Reuther, has accused aircraft management of failure to meet its "social and moral responsibilities" in the field of collective bargaining. Accusing aircraft firms of having "one of the most backward managements in America," he said their attitude has been "a retarding factor in the full mobilization of our productive capacity in the aircraft industry."

The head of one of the two principal aircraft unions declared aircraft companies during wartime and times of emergency "when the industry is feeding off the fat goose of military contracts and guaranteed profits" fail to meet their responsibilities to employes and added that the same situation holds true during peacetime "when the industry's pickings are lean and when the employes' collective bargaining power is weakened by layoffs and cutbacks."

He pointed out that in many cases aircraft and automobile companies are now building the same product for the Navy or Air Force and deal with the UAW. But, Reuther added, there is a differential of 20 cents an hour or more in many cases.



Latest contender for the title of producer of the world's most powerful turbojet engine is Westinghouse, which says this new version of its J-40 develops thrust "equivalent to 25,000 horsepower at today's jet flight speeds" through the use of an afterburner.

Roy Hurley, Gilpatric Debate Profits

Is the aircraft industry making enough profit or isn't it? Roy T. Hurley, president and board chairman of Curtiss-Wright Corp., has stated repeatedly that the net return permitted aircraft and engine builders under the government's pricing and facilities program (about 2%) is inadequate.

But Under Secretary of the Air Force Roswell L. Gilpatric is convinced the 2.1% return on net sales, which he says is the average of 15 aircraft companies surveyed, is enough to keep the industry in sound financial condition.

At the recent Airpower Preparedness Day Symposium in Detroit, Hurley renewed his plea for more favorable treatment. Calling for a program whereby the engine builder provides his own facilities (instead of having them furnished by the Navy or Air Force), Hurley said, "If the government . . . does not recognize the growth factor of the aircraft engine from a production point of view . . . and if [it] insists that the companies' growth . . . be controlled by a limited return on net worth, then the companies will be unable to provide the new facilities to grow with their product, and the government will have to provide more and more of the financial wherewithal to conduct the business."

Gilpatric answered Hurley by stating that the 2.1% net return amounts to 26% of the net assets of the 15 companies he surveyed as of last Dec. 31.

"I believe," the USAF Under Secretary added, "that the aircraft industry as a whole is in sound financial condition today, and the prospects are that it is entering a period of prosperity in spite of high taxes."

Gilpatrick admitted, however, that the profit and tax situation might have to be checked again at some future date. "When total military expenditures for aircraft fall below $10 billion a year, it will be necessary to review the overall picture of profit margins and taxes so that the aggregate net income will bear a reasonable relationship to the size of the industry that should be maintained in the national interest."

P&W to Build Ramjets

Pratt & Whitney Aircraft has begun work on a Navy contract to develop and build ramjet engines for high speed guided missiles. The division will take over a ramjet laboratory operated by the research department of the parent concern, United Aircraft Corp., and P&W's Willgoos Turbine Laboratory will be expanded to handle the new project. The Navy contract calls for development of various types of ramjets.

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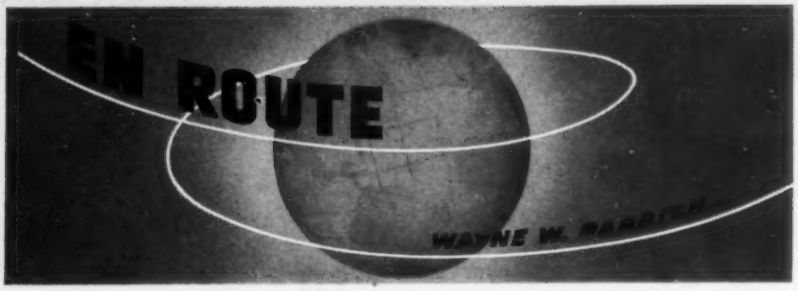


Shepherd's Market. Just a few steps down Piccadilly from the Royal Aero Club a narrow street takes you to one of those picturesque little byways of London. This one is known as Shepherd's Market and is accessible only to pedestrians. There are some small old one-story shops. Lanes and narrow streets converge on this little secluded area, which probably got its name a great many years ago when a market actually existed there.

If you're walking and want to cut through from Piccadilly to Grosvenor Square, you'll undoubtedly cut through Shepherd's Market. It's a pleasant walk. I have passed through there many times and even found my way during the blackout in the war. On a moonlight night it's particularly attractive.

Last May I spent one night and a day in London seeing friends on my way back to New York from Paris, and I chanced to go to Shepherd Lane looking for, of all things, a Coke, since Cokes are usually found only in small cafes or delicatessens on the back streets. There I noticed eight or 10 men reading notices on a large bulletin board and wondered what kind of notices would be getting such avid attention. In all the times I had passed through that area I had never noticed a bulletin board before.

✣ ✣ ✣

Advertising Pays. Inquisitive as ever, I edged my way up to see what was so important and I found out in short order. Posted on the board was a dazzling array of carefully phrased notices placed there by ladies of undetermined virtue. Some had even attached photos of themselves. Here indeed was a market place such as the original namer of Shepherd's Market had never dreamed of in the olden days of London, or at least we must presume so.

As you will quite understand, my interest in such things is purely academic, but in the furtherance of research, study, travel, and adventure, all for the sake of providing you readers with the highest type culture available on short notice in these hectic days, I am passing on to you the delicately turned phrases which certain London ladies use in what seemed to me to be a unique example of advertising.

In all cases telephone numbers and/or addresses were given, but I will not be a party to any breakdown of moral caliber and fiber among the exemplary readership of this page, so you'll have to copy that data yourself when you get over there.

Take Your Choice Here are some samples:

"Advertiser wishes to meet lonely gentleman with flat in town. Fond of indoor sports."

"Very autocratic young lady wishes to meet an understanding sponsor. Write for details."

"Lady, trained on Continent, gives stimulating or relaxing massage."

"Gentleman of good physique wishes to meet broad-minded lady."

"Petite model offers her services to photographers and artists. Studio available. Height 5'4", bust 34", waist 24", hips 34".

"Visitors to London. Attractive, petite young lady entertains and acts as hostess. Phone for appointment before 7 p.m."

"Two young ladies offer their services to photographers and artists. Fully equipped photographic studio available."

"Attractive cultured lady will entertain gentlemen visitors to London. So why be lonely? Will act as hostess and is willing to travel."

The others were along the same lines and I would say that half of the notices used the photographers gag. Quite a few gave their measurements. At any rate, there's new life in Shepherd's Market which I never knew about until May. Don't say I didn't warn you.

Like the cartoons . . .

Odd Signs. Since I'm on the subject of London, there are a couple of signs you see there which you won't find on this side of the Atlantic. One is the ad for chimney sweeps. There are several you can spot on the way into town from London Airport.

Another is the word "bespoke." I buy my shoes from a fine old shoe firm by name of Alan MacAfee on Dover Street. One day I got a letter from the firm which started out talking about my bespoke pair of shoes, and I couldn't figure out what the devil it meant.

In due course I discovered it means stuff you've ordered, custom-made, or specially fitted, or altered, and which you are to collect at some time. I spotted a big sign in a London store in May which referred to the "bespoke shirt department." In other words, don't speak until you're bespoken to.

The day in London was pretty busy, but my wife and I put everything aside until we visited the famous Chelsea Flower Show, an annual affair every May. It is a tremendous show, possibly the finest thing of its kind in the world, and a lot of it is out of doors. The rest is under tents.

It draws an enormous number of visitors and I've never seen such lavish and beautiful displays of flowers of all kinds. I'm not much for shows of this kind, but I'll always go to this one if I get a chance, and let me recommend it most highly. Nothing like it in the U. S.

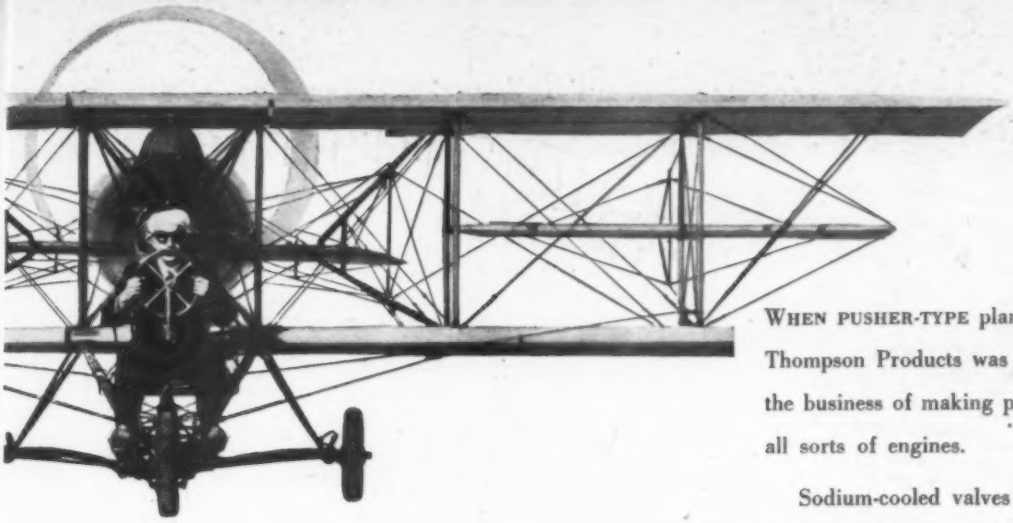
✣ ✣ ✣

In Real Life. Seems to me that a lot more bowlers and umbrellas are now seen on London streets than one saw for the first few years after the war.

We take delight in cartooning the so-called typical Englishman with his bowler hat, tight-fitting suit, striped high-collar shirt, and the tightly rolled umbrella. But you can't walk far in London without seeing a lot of birds outfitted just that way and swinging that umbrella as they stroll down the street. It's always interesting to me to find out that there are people who live just as the cartoonists say they do.

Both TWA and Pan American have prominent ticket office locations on Piccadilly. Since I was returning to New York on TWA I had to go around and make sure of my space, so I hailed a cab and told him to take me to TWA on Piccadilly. He drew a blank. I then said Trans World Airlines. He seemed to get what I wanted and then proceeded to pull up in front of Pan American. I hadn't seen **Jim Montgomery** of PAA for some time, so I got out and paid a visit and later walked a block farther to TWA, where I met some friends and then heard a story about TWA's board chairman, **Warren Lee Pierson.**

Seems that Pierson was in London on a trip and he decided to take some TWA people to a night club. The local TWA guy had contacts, so they ended up right next to the floor show stage. And what happened, but of course. The chorus danced on and each gal carried a PAA overnight bag and PAA was worked into the opening song. Everybody got a big laugh out of it except the guy who knew the ropes and arranged the table.

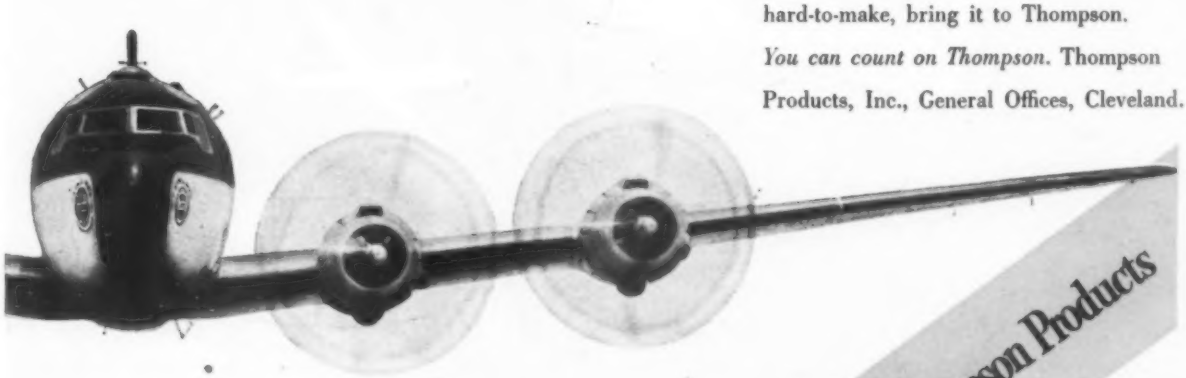


Everything's changed but the air!

WHEN PUSHER-TYPE planes were flying, Thompson Products was starting the business of making precision parts for all sorts of engines.

Sodium-cooled valves and booster pumps are only two of the many Thompson developments that have made flying one of the major means of transportation. Thousands of modern jet engines so vital to our defense are assembled from blades and buckets made by Thompson. In fact, the story of the growth of aviation—indeed all modern transportation—is the story of Thompson.

Today Thompson is busy anticipating new products, perfecting new processes that will improve transportation and aid all industry. If it's hard-to-make, bring it to Thompson. *You can count on Thompson.* Thompson Products, Inc., General Offices, Cleveland.



You can count on Thompson Products

Shannon, Ireland—gateway for trans-Atlantic operations—demanded unfailing safety and dependability in communications equipment plus greater operating flexibility for this high traffic density station.

Here's why they installed 29 units of Wilcox 96 Series 2500 Watt Transmitters:

- Unit construction of Wilcox 96D transmitting station provides for either simultaneous transmission on a number of frequencies or the selection of a single channel best suited to the particular requirement.
- Advanced design and techniques such as: hermetically sealed meters, transformers and capacitors assure dependable . . . trouble-free performance.

Write today for complete information!

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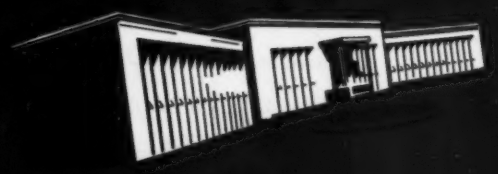

wilcox

News At Deadline

Machinists Walk Out In Lockheed Strike

The first strike in the history of the Lockheed Aircraft Corp. began last week as over 20,000 AFL-Machinists walked out of the company's Burbank plant.

Police were called to clear a path into the Lockheed Air Terminal for airline passengers after the entrance had been blocked by a line of pickets marching three abreast.

The walk-out was the result of a dispute over wage demands and a union shop. The IAM's latest request was for a pay raise of 16 cents an hour; the company offer was nine.

The Burbank plant opened in spite of the strike, and the Marietta plant stayed in operation.

EAL: Britannia, Perhaps; Comet Lead Slipping

Eastern Air Lines is interested in the Bristol Britannia as well as the Comet, and will see plans for a new Lockheed jet transport this fall, according to Capt. E. V. Rickenbacker, president and general manager, recently back from Britain (see p. 20).

Capt. Rickenbacker, who said Eastern wants to buy $100 million in new equipment, also asserted last week that the British lead in jet transports has slipped from 10 years to merely three or four. He repeated earlier reports that Eastern would be interested in splitting with de Havilland the costs of running the Comet II on a New York-San Juan service, pending delivery of Comet III's.

de Havilland, meanwhile, revealed tentative production plans for the Comet III. "We visualize building six in 1956, 40 or 50 in 1957, and about 70 in 1958, "a company spokesman stated, adding that the time lag is due to development, not production requirements.

Harold R. Harris, Pan American World Airways' vice president-Atlantic Division, has denied that Pan Am has signed any contract for Comets. The firm is, however, studying proposals from both British and American manufacturers.

New Turboprop Engine, Props Due From C-W

A new turboprop engine is "in an advanced state of development" at Curtiss-Wright Corp. along with an accompanying series of turbolectric propellers ranging in size up to almost 20 feet in diameter.

The engine, which is reportedly being considered for turboprop versions of the Convair YB-60 and Boeing B-47, is said by Curtiss "to dwarf in power any aircraft engine yet made public." The propeller series is termed capable of "harnessing power output up to 20,000 horsepower and more," and paving the way for turboprop aircraft speeds of up to 1,000 mph.

Truman Withdraws Mexican Routes

Previous approval of the U. S.-Mexico certificates of Eastern, Braniff, and Western Air Lines has been withdrawn by President Truman. The certificates, five years old but never operated because of bilateral agreement difficulties between the two countries, were described by the President as a "significant factor" in the failure to reach such agreement.

Bi-lateral negotiations were suspended last December after weeks of discussion proved fruitless. The President added that such negotiations may have been and may yet be prejudiced by "private efforts to negotiate on an individual basis."

Wisconsin Central Buys Nine DC-3's from Purdue

Wisconsin Central Airlines is buying nine of the 10 Douglas DC-3's purchased by Purdue University from Eastern Air Lines for $1,000,000 in a move which will give Wisconsin the largest fleet among local service carriers. The planes had become surplus when CAB denied renewal of Mid-West Airlines' certificate.

Agreed to by the airline's board of directors and the trustees of Purdue Foundation, the contract provides that Purdue Research Foundation will supply the funds to the carrier for refinancing its present obligations on more favorable terms. The DC-3's will be modernized and overhauled prior to transfer through a working arrangement whereby the maintenance and shop facilities of Purdue Aeronautical Corporation at Lafayette will be utilized for the overhaul work.

The additional equipment will be assigned to military charter operations pending CAB approval of new route proposals now on file.

Four-Engine Coaches Would Up Seat-Miles

Eight billion additional seat-miles could be made available for certificated service in 1954 if all four-engine aircraft then flying were to be converted to coach configurations. This was the estimate of a CAB witness testifying at the Large Irregular Carrier Investigation. Francis O. Veit, Bureau Counsel witness, estimated that such conversion would bring a total of 39.8 billion seat-miles into service on domestic and international certificated routes.

Veits' testimony is seen as supporting the contention that adequate low-cost service can be provided by certificated carriers.

Off-Shore Fighters Picked in Europe

Three European jet fighters have been picked for the United States' "off-shore" procurement program, according to William L. Batt, retiring economic affairs minister at the American Embassy in London. They are the Vickers-Supermarine Swift, the Italian license-built version of the de Havilland Venom, and the Dassault MD 452 Mystere.

Mystere orders will bring France $86 million from the U. S. in the next three years, out of France's $185 million in "off-shore" orders. France had requested $625 million in such orders.

WAL Optimistic About DC-6B Use This Year

Western Air Lines still expects to begin limited service with DC-6B equipment this year despite delivery delays caused by the steel strike, T. C. Drinkwater, president, advised WAL stockholders.

Originally scheduled for delivery in late September, the first DC-6B is now expected in November, along with two others. The fourth and fifth WAL DC-6B's may encounter additional delays. Scheduled for February, delivery is now uncertain because of the steel strike's effect on production of R-2800 engines from Pratt and Whitney.

Fowler Named as Defense Mobilizer

A successor to Charles E. Wilson has been named by President Truman to head the Office of Defense Mobiliza-

tion. Henry H. Fowler, NPA-DPA Administrator, who was the President's choice, has indicated, however, that he will remain in the government only until the end of the year. He will retain his title as Defense Production Administrator until he finds out whether ODM and DPA can be merged.

Fowler will succeed Presidential Assistant John R. Steelman, who has been filling the ODM post temporarily. Steelman recently reported that "substantially" more than 800 military planes were delivered during July and that production of G-E J-47 jet engines also rose. Military goods deliveries hit $2 billion during June, were slightly greater in July, and will reach a monthly peak of $2.7 billion late next spring.

Tubeless Aircraft Tire

A tubeless tire for combat jets, similar to those introduced for automobiles five years ago, is under test at the B. F. Goodrich Co. The new tires have a layer of American-made rubber which seals in air and thus replaces an inner tube.

Lockheed Management Shifts Announced

A major management shift for "more effective control" at Lockheed Aircraft Corp. has moved Courtland S. Gross, vice president and general manager, to the post of executive vice president. Burt C. Monesmith, vice president-manufacturing, becomes vice president and general manager-California division. Daniel J. Haughton will continue to be vice president and general manager-Georgia division.

Hall L. Hibbard, vice president-engineering, has been added to what is now a five-man management policy committee. Vice president Carl B. Squier will be assistant to the president.

The changes were described by Lockheed officials as reflecting a sharper division between long-range policy planning and day-to-day operations.

Wheeless Landings Eliminate Runways

Building the "landing gear" into the airport instead of into the airplane has been successfully tried with a de Havilland Vampire jet fighter, according to Sir Ben Lockspeiser, chief scientist to the British Ministry of Supply.

The new technique eliminates the need for that "expensive nuisance," the runway, by requiring that the aircraft be catapulted into the air and make a "belly landing" on a taut, flexible sheet with the aid of an arresting hook. The landing is reportedly made without bounce after the aircraft has been dropped onto the sheet.

Reinforcement of the fuselage is necessary, but the added weight is more than offset by the elimination of the landing gear.

Col. L. H. Brittin Dies

Col. Lewis Hotchkiss Brittin, 75, who organized what is now Northwest Airlines in 1926, died early this month at his home in Washington, D. C. Brittin had served as executive vice president of Northwest Airways, Inc., until 1934, and had also been president of the National Association of State Aviation Officials, and executive director of the Air Freight Association.

'New' Mexican Airline

Lineas Asociados Mexicanas S. A. (LAMSA), which was formed to take over the operations of United Air Lines' Mexican subsidiary, Lineas Aereas Mexicanas S. A., is not a new company but merely a new name adopted by Aerovias Continentales so as to maintain the initials of the old LAMSA.

340's for Venezuela

Aerovias Venezolanas, S.A. (AVENSA), has ordered three Convair 340's and is planning to use them on the Carcas-Maracaibo route in Venezuela after they are delivered in 1954.

Suit Against Janas Dismissed by Court

A $500,000 damage suit filed against Sigmund Janas, Sr., by Colonial Airlines early this year has been dismissed by the U. S. District Court for the Southern District of New York. Also thrown out by the same court was a suit against former Colonial president Alfons B. Landa, his Washington law firm, and Colonial, which was brought in April by a former Colonial official, Alfred M. Hudson.

Dismissal of the Janas suit was predicated largely on the $75,000 "restitution" made recently by Janas to Colonial, in line with a CAB directive. Court held that CAB had jurisdiction in such matters and, in effect, if the company wanted more than the $75,000 it should seek recourse through CAB. CAB disputed this finding, claiming it has no jurisdiction over any civil action Colonial may take against its former president.

American Wins Name Infringement Case

The American Airlines suit initiated against European-American Airlines, Inc., last spring has been settled in favor of American Airlines. The suit had charged trade name infringement and unfair competition.

DuBuque to CAOA Post

A new executive director and secretary of the Corporation Aircraft Owners Association has been named. Jean H. DuBuque will replace Herbert O. Fisher, who recently resigned to join the Port of New York Authority.

DuBuque has been in aviation for over 20 years, having been special assistant to the Under Secretary of Commerce for Transportation during the past year, and previously special consultant to the Secretary of the Air Force, director of aviation for the City of Dallas, director of advertising and public relations for Lear, Inc., and assistant to the sales manager of Beech Aircraft Corp.

El Al to Buy Connie

El Al Israel Airlines is negotiating the purchase of a Lockheed L-049 Constellation in the used plane market to supplement its three early model Connies. The plane is to be used for the trans-Atlantic tourist service.

Local Service Lines Turn to Low Fares

Local service airlines are turning to low-fare promotional services in an effort to stimulate travel during the fall and winter seasons. Pending CAB approval now are proposals of Pioneer, Trans-Texas, Mohawk (formerly Robinson) and Bonanza to establish reduced round-trip excursion fares over important segments of their routes.

Additional proposals along these lines are expected in the next few weeks. Considered largely responsible are talks held recently by local service heads and CAB staff officials over means of building up load factors during slump periods.

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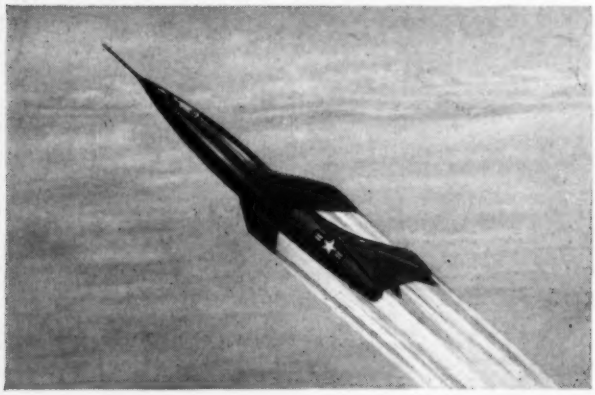
A daring flyer of the twenties, Major Rudolph ("Shorty") Schroeder, sent his super-charged Le Pere plane to its utmost ceiling of 38,180 feet back in 1920 to set a new world record! He received nation-wide acclaim for one of the greatest feats of the day!

High Flyer 1951

Another day, another record! Just thirty-one years later at Muroc Dry Lake, California, the U. S. Navy's *Skyrocket* powered by 4 rockets and air launched from a modified B-29 bomber, soared into space at "unprecedented" heights and speeds, topping *all* previous speed and altitude records.



● This remarkable thirty-year record of progress is indicative of the course that lies ahead! There is *no limit* to the vistas that may be opened up for those who fly!

And future improvements in design, speed and endurance of planes will be matched by equally important developments in aviation fuels.

Phillips Petroleum Company will continue to contribute to this progress according to the very latest demands of modern aviation. As one of the nation's largest suppliers of dependable aviation products for commercial and military use in all ranges of flight, Phillips is ready today with new fuels for the latest turbo-props and jets . . . in addition to tremendous capacity for producing 115/145 grade aviation gasoline. When you want *dependable, high-performing* aviation products—call on Phillips!

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